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October 1999

# Program Manager Oversight of Life-Cycle Support



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Report of the Department of Defense  
Program Manager Oversight of Life-Cycle Support Study Group  
Section 912(c)

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## Preface

Secretary of Defense Cohen submitted *Actions to Accelerate the Movement to the New Workforce Vision* to Congress in April 1998 to identify the actions to implement a “real revolution in business affairs.”<sup>1</sup> He documented five initiatives to develop capabilities in the Department of Defense (DoD) to respond to the dynamic and unpredictable military challenges faced today. The second initiative, *Restructure Sustainment*, identified the following five necessary actions:

1. Reengineer the product support process to use best commercial practices
2. Competitively source product support
3. Modernize through spares
4. Establish program manager oversight of life-cycle support (PMOLCS)
5. Greatly expand Prime Vendor and Virtual Prime Vendor arrangements.

Two teams worked the five actions. The Product Support Reengineering Implementation Team (PSRIT) developed the strategies to implement actions one, two, three, and five. The PMOLCS Study Group studied action four. The PSRIT output—action plans to establish a new product support environment—sets the stage for the PMOLCS Study Group to redefine a program manager’s role through a system’s life cycle.

Both teams referenced the operational concept of focused logistics in *Joint Vision 2010* as the future framework for logistics operations.<sup>2</sup> Focused logistics will fuse information, logistics, and transportation technologies “to provide rapid crisis response, to track and shift assets even while en route, and to deliver tailored logistics packages and sustainment directly at the strategic, operational, and tactical level of operations.”<sup>3</sup>

The PSRIT, in its report, *Product Support for the 21st Century*<sup>4</sup>, develops strategies for DoD to transform from a “mass logistics system to a highly agile, reliable system that delivers logistics on demand.”<sup>5</sup> The PSRIT, after extensive research into commercial best practices, recommends changing to a product support orientation by shifting organizations, financial processes, and performance standards from a focus on parts to a weapon system approach. Product managers are critical to the successful realignment toward a product support orientation.

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<sup>1</sup> U.S. Department of Defense, Secretary of Defense, *Actions to Accelerate the Movement to the New Workforce Vision*, 1 April 1998.

<sup>2</sup> U.S. Department of Defense, The Joint Staff, *Joint Vision 2010, Focused Logistics—A Joint Logistics Roadmap*, 1996.

<sup>3</sup> Ibid., p. 24.

<sup>4</sup> U.S. Department of Defense, Product Support Reengineering Implementation Team, *Product Support for the 21st Century*, July 1999.

<sup>5</sup> Ibid., p. v.

The commercial sector offers many examples of successful product management. Product managers integrate information across marketing, manufacturing, and logistics functional structures to coordinate workflow to align with product-oriented strategic requirements. They also use the cross-functional information to plan their market strategy to exploit new markets successfully.

For example, the Procter and Gamble Company created the brand manager in the early 20th century to provide a point of contact to address product management issues. More recently, Procter and Gamble extended the product manager concept to the logistics functions under a product supply manager. Purchasing, engineering, and manufacturing responsibilities reside under a single authority who reports directly to the product brand manager. This change pushed the decision-making closer to operations to provide quicker market entry and quicker response to market threats.

Because of the product manager model's success in industry, the Department will test a similar role for its program managers. Program managers will have increased visibility of operating and support costs and be able to optimize the effectiveness of their weapon systems. The new role for the program manager will influence responsive, flexible, accurate, and cost-effective focused logistics operations into the 21st century.

This report documents the PMOLCS Study Group's results and presents a construct to anticipate changes in policy to promote the program manager as a critical component of the 21st century product support environment.

## Executive Summary

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Section 912(c) of the National Defense Authorization Act for Fiscal Year (FY) 1998 directed that the Secretary of Defense submit to Congress an implementation plan to streamline the Department's acquisition organizations, workforce, and infrastructure. In his report, the Secretary committed to conduct several studies with the goal of adopting best commercial practices in reengineering the Department's product support processes.

On 28 August 1998, the Under Secretary of Defense (Acquisition and Technology), established and chartered a Program Manager Oversight of Life-Cycle Support (PMOLCS) Study Group. The charter required the study group to determine if governing policies are adequate for program executive officers and program managers (PMs) to control operations and support costs and reduce total ownership cost (TOC). The study group met in plenary and core group sessions from September 1998 to August 1999. This document reports the effort of the study group to establish PM oversight of life-cycle support.

### A NEED FOR CHANGE

A substantive change in the role of PMs in the life cycle of systems requires a long-term, sustained effort. Substantive changes mean redefining the roles of multiple, powerful communities within and external to the Department of Defense that are defined by custom, law, and organizational structures developed over decades. This challenge of making substantive changes impedes the implementation of increased PM oversight of life-cycle support.

However, because of the expected advantages of having a product focus on system life-cycle management, the Department is pursuing a change in the role of PMs. As with any challenging task, the initial steps are very important. The first PMOLCS steps are to test new ideas, measure the results, develop appropriate new policy, and change the culture. The vehicle for the tests is a set of 30 pilot programs that the Military Departments identified during the study group's work. Because of the need to identify initial steps that are achievable, the study group developed two products and three recommendations.

### PMOLCS STUDY GROUP PRODUCTS

The first product is a report known as the "Section 816(a) Report." This report designates 10 pilot programs (from a total of 30 Section 912[c] pilots) for reporting to Congress. The Section 816(a) Report also outlines the following four

thrusters (that are the bases for the three recommendations) that the Department is pursuing to improve PM oversight:

- ◆ Increase the Department's visibility of product support costs and PMs' visibility and appropriate control of product support functions and funding during the life of systems
- ◆ Implement formal commitments for product support through agreements among the warfighters, program managers, and government support activities or through competitive awards with private-sector organizations
- ◆ Examine ways to improve the funding stability of programs to realize the benefits of public and private long-term capital investments
- ◆ Manage the cultural change in the public and private sectors effectively to improve management of product life-cycle support.

The second product is a memorandum that provides for testing of new ideas for PM oversight.<sup>1</sup> The memorandum requests that the Military Departments provide implementation plans for each of the 30 pilot programs (including the 10 pilots included in the Section 816[a] Report). Each implementation plan is to address appropriate management actions, costs, and recommendations for changes to policies, regulations, organizations, and statutes. The Military Departments will submit their PMOLCS implementation plans to the Reduction in Total Ownership Cost Working Group as directed by the Under Secretary of Defense (Acquisition and Technology).

## PMOLCS STUDY GROUP RECOMMENDATIONS

Early in the study, participants identified the need to recommend that the TOC of new weapon systems be a critical parameter. Thus, the study group developed the following recommendation:

*Recommendation 1. The community of acquirers, warfighters, and supporters should agree on a system TOC that is a critical parameter in the system operational requirements document.*

At the same time, the Requirements Generation and Acquisition Study Group developed this recommendation in its report. Therefore, the PMOLCS Study Group affirms the recommendation but does not address it further.

A "PMOLCS construct" provides a basis for the second recommendation. The construct is a conceptual framework that describes the current product support environment as a baseline for comparison with desired features in a "to be"

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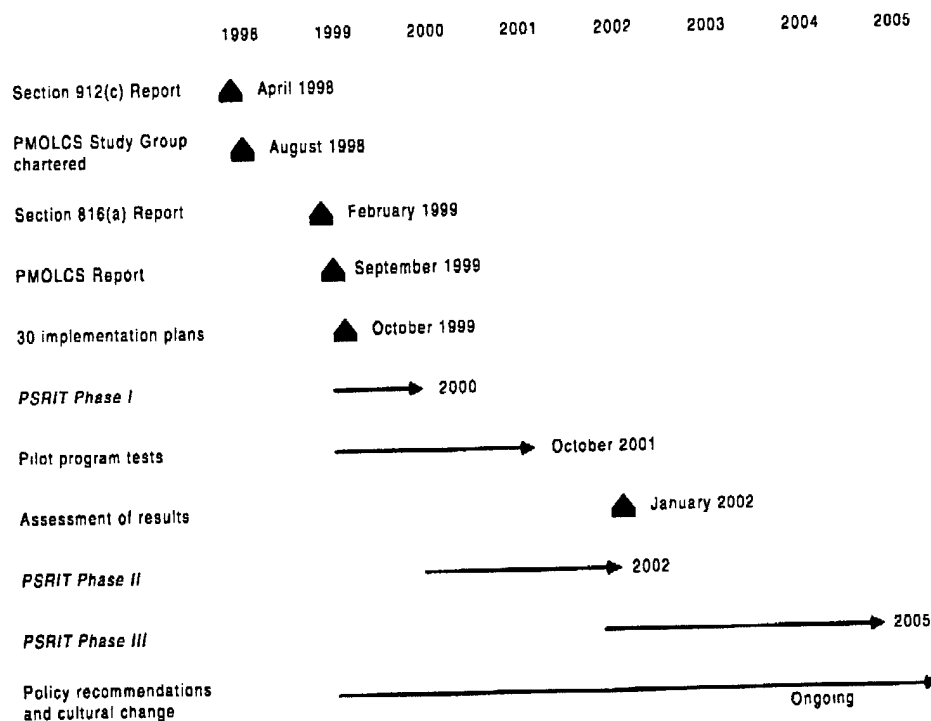
<sup>1</sup> Gary Christle, Acting Director, Acquisition Program Integration, Memorandum to the Service Acquisition Executives, Subject: Request for Pilot Program Implementation Plans for Program Manager Oversight of Life-Cycle Support (Section 912[c]), 12 February 1999.

support environment. In the "to be" environment, program managers, warfighters, and the support community (public and private sources) work together to acquire, use, and support military capabilities.

*Recommendation 2. The Military Departments will, as appropriate, test the concepts and implied policies, practices, and procedures of the PMOLCS construct in various combinations in their Section 912(c) pilot programs. The Military Departments will report and assess results of the pilot program tests by 1 January 2002.*

Recommendation 2 parallels the timing of the Product Support Reengineering Implementation Team's (PSRIT's) Phase II, *Implement Pilot Integrated Supply Chains*. A timeline for continuing to refine and implement the PMOLCS construct is the basis for the third recommendation (Figure ES-1).

Figure ES-1. PMOLCS Timeline



Note: The three PSRIT phases are I, establish the new product support environment; II, implement pilot integrated supply chains; and III, implement full-scale integrated supply chains.

*Recommendation 3. The chairperson of the Reduction in Total Ownership Cost Working Group will monitor the Military Departments' tests. As appropriate, the chairperson will review results, develop legislative proposals and policies, and ensure cultural changes to implement program manager oversight of life-cycle support.*

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## Chapter 1

# Introduction

### THE 912(C) REPORT

Section 912(c) of the National Defense Authorization Act for Fiscal Year (FY) 1998 directed that the Secretary of Defense submit to Congress an implementation plan to streamline the Department's acquisition organizations, workforce, and infrastructure. In his report, the Secretary committed to conduct several studies with the view towards adopting best commercial practices in reengineering the Department's product support processes.<sup>1</sup>

One of the studies was to establish Program Manager Oversight of Life-Cycle Support (PMOLCS). In his report, the Secretary stated:

In today's environment, most program executive officers (PEOs) and program managers (PMs) have direct responsibility and control of funding for development and fielding weapons systems and equipment. Once the system or equipment is fielded, the PM retains overall responsibility for the system or equipment, but loses control of significant portions of the funding required for support.

This practice results in much higher life-cycle costs than should be the case because the PEO and PM have no incentive to take action, during development or modification of the systems, to design into the equipment features that will improve the reliability, availability and maintainability of the fielded system; and it divides the responsibility important to incentivize proper tradeoffs during development, acquisition and modification and to control total ownership cost. Funding control improves program stability and allows PMs to optimize the effectiveness of and support for their weapon system.

The Secretary stated<sup>2</sup> further that he would direct each Military Department to designate at least 10 significant<sup>3</sup> programs for which the PMs would be made responsible for ensuring that product support functions are carried out properly during their life cycles. In response, each Military Department provided a list of 10 pilot programs and an outline of the management actions for their PMs to achieve appropriate oversight. Appendix B lists each Military Department's 10 programs and the planned management actions for PMs to achieve appropriate oversight.

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<sup>1</sup> U.S. Department of Defense, Secretary of Defense, *Actions to Accelerate the Movement to the New Workforce Vision*, 1 April 1998.

<sup>2</sup> Ibid. (Paragraph 2.4 addresses an initiative to establish PMOLCS.)

<sup>3</sup> Programs that have large operations and support cost during their life cycles.

On 28 August 1998, the Under Secretary of Defense (Acquisition and Technology), USD(A&T), established a study group and charter for PMOLCS.<sup>4</sup> The study group was directed to determine if policy changes are needed for PMs to ensure product support functions are properly carried out throughout the life cycle.

The study group was guided by, but not limited to, the following objectives:

- ◆ Identify product support functions for a weapon system or equipment, the organizations responsible for the costs of the support functions, and policy documents that authorize the control.
- ◆ Determine support functions appropriate for PMs to control to reduce life-cycle costs.
- ◆ Determine changes needed to the policy documents, procedures, or practices that will enable PMs to control the costs of support functions.

## THE SECTION 816(A) REPORT

### Pilot Programs

In a separate but related matter, Section 816(a) of the National Defense Authorization Act for FY 1999 states, "The Secretary of Defense, acting through the Secretaries of the Military Departments, shall designate 10 acquisition programs of the Military Departments as pilot programs on program manager responsibility for product support." In response to Section 816(a), the USD(A&T) selected 10 pilot programs from the set of 30 Section 912(c) programs for reporting to Congress. In addition to this Section 912(c) Report, the study group prepared the Section 816(a) Report (Appendix D).

The Section 816(a) Report describes 10 pilot programs for reporting to Congress. However, all 30 programs will be Section 912(c) pilots for testing and monitoring PM oversight of life-cycle support in the Department. The requirement for PMOLCS implementation plans to test oversight is discussed in the following sections.

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<sup>4</sup> The charter is included as Appendix A. Study group members are listed in Appendix C.

## PMOLCS Thrusts

The study group, in its letter of transmittal to Congress as part of the Section 816(a) Report, outlined the direction, or thrusts, for management actions to implement PMOLCS. The thrusts are the following:

- ◆ First, we intend to increase the Department's visibility into product support costs and the Program Manager's visibility and appropriate control of product support functions and funding over the life of the system. Management changes are designed to ensure that warfighting capabilities can be delivered and sustained at a cost we can afford.
- ◆ Second, we are moving toward implementing formal commitments for product support through agreements among the warfighters, program managers, and government support activities or through competitive awards with the private sector.
- ◆ Third, we are examining ways to improve program funding stability to realize the benefits of public and private long-term capital investments, which should result in reduced product support costs.
- ◆ Finally, we are working to manage effectively the cultural change in the public and private sectors that will be needed as we improve the product management of life-cycle support for our weapon systems.

## PMOLCS IMPLEMENTATION PLANS

Another study group product is a memorandum that provides for testing new ideas for PM oversight. This memorandum requests that the Military Departments provide implementation plans for each of the 30 pilot programs (including the 10 pilots included in the Section 816(a) Report). Each implementation plan is to address appropriate management actions, costs, and recommendations for changes to policies, regulations, organizations, and statutes. As discussed at the PEO/Systems Command (SYSCOM) Workshop held on 25-26 April 1999, the pilot strategies should reflect the needs of the program and Service. The Military Departments will submit their PMOLCS implementation plans to the Reduction in Total Ownership Cost (RTOC) Working Group as directed by the USD(A&T). Appendix E is a copy of the memorandum.

## PMOLCS CONSTRUCT

The study group developed a "PMOLCS construct." The construct describes a "to be" environment in which PMs, warfighters, and the support community (both public and private sources) work together to acquire, use, and support military capabilities. The study group found that all support functions are appropriate for PM visibility, and some may be appropriate for direct PM control.

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## ORGANIZATION OF THIS REPORT

Chapter 2 answers the tasking in the study group's charter concerning support functions appropriate for PM oversight. Chapter 3 answers the tasking concerning policies and practices that need to be changed for PMs to control the costs of support functions. Chapter 4 provides the study group's recommendations.

This report includes eight appendixes. Appendix A is the charter of the PMOLCS Study Group. Appendix B lists the pilot programs and management actions. Appendix C lists the POMLCS Study Group members. Appendix D is the Section 816(a) Report. Appendix E is the memorandum for Service Acquisition Executives. Appendix F presents the results of a survey of PEO and PM views on product support. Appendix G lists abbreviations used in this report.

## Chapter 2

# PMOLCS Construct: A Total System Approach to Cost Visibility

### OVERVIEW

The first thrust of the PMOLCS Study Group is to increase the Department's visibility of product support costs and the PM's visibility and appropriate control of product support functions and funding during the life of a system. As noted in the PMOLCS charter, giving the PM responsibility for operations and support (O&S) costs is important to incentivize tradeoffs during development, acquisition, and modification and to control total ownership cost (TOC). As a result, the USD(A&T) directed the study group to "determine which of the support functions are appropriate for the PM to control in order to reduce life-cycle costs."

This chapter uses a systems approach to identify product support functions and cost elements for meeting PM, warfighter, and support community requirements. This chapter also identifies the process to establish a cost baseline to track O&S costs.

### KEY DEFINITIONS

PMs balance the dynamic interchange between mission capability and TOC to satisfy focused logistics requirements. PMs also negotiate warfighter and support community requirements to maintain the balance throughout the weapon system life cycle. The PMOLCS Study Group defines these two seemingly opposing requirements as follows:

*Mission capability* is the ability of supported weapon systems to meet a commander's mission requirements. It measures readiness across product support including supply, maintenance, and transportation.

*Total ownership cost* is the sum of financial resources to organize, equip, sustain, and operate military forces to meet national goals, policies, and standards of readiness, safety, and quality of life concerns. The TOC for Defense systems consists of the costs to research, develop, acquire, own, operate, and dispose of weapon and support systems. It includes direct costs and indirect costs attributable to the systems. Product support mainly concerns the portion of TOC that occurs

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<sup>1</sup> USD(A&T) memorandum, *Subject: Definition of Total Ownership Cost (TOC), Life Cycle Cost (LCC), and the Responsibilities of Program Managers*, 13 November 1999.

after the weapon system is fielded (the O&S phase of a system's life cycle). An RTOC group was formed to focus on the reduction of costs in these phases.

## PROCESS FOR DEFINING PRODUCT SUPPORT FUNCTIONS

Although the recurring portions of O&S costs are not incurred until after a system is deployed, major decisions that determine O&S costs are made long before a system is fielded. The decisions having the most impact on support costs are usually made before Milestone I. As plans are developed and system designs are finalized, the opportunities to influence TOC diminish. Decisions about such aspects as system design, source of support, and funding control influence O&S costs and need to be addressed early in the acquisition process. To make proper tradeoff decisions and hold support costs to a minimum, as discussed at the PEO/SYSCOM Workshop in April 1999, PMs must identify cost factors and obtain accurate estimates of support costs early in the acquisition process. Thus, PM life-cycle responsibilities also have to be addressed during early phases of development. PMs, working in the new product support environment, would exercise PMOLCS using a total system approach to defense acquisition.

In the total system approach, acquisition programs are managed to optimize system performance and minimize TOC. The total system includes not only the prime mission equipment and its product support items, but the people who operate and maintain the system. This approach complements the Cost as an Independent Variable (CAIV) strategy in DoD Directive 5000.1. CAIV efforts balance cost, performance, and schedule tradeoffs within a total system framework for efficient risk and cost management.

Using the total system approach to define product support expands the scope of support beyond the requirements for maintenance, supply, distribution, and transportation of the prime mission equipment. It expands the scope to include support for the people who operate, maintain, and support the system (such as training and medical support) and support associated support equipment and training systems. Product support also includes support for mission operations (e.g., command, intelligence, photo interpretation, safety, and security); sustaining support (e.g., support equipment replacement); and support for continuous technology insertion (e.g., configuration management and sustaining engineering support).

## REQUIRED COST ELEMENTS

In the report on *Product Support for the 21st Century*, product support is defined as encompassing "all critical functions related to weapon system readiness, including materiel management, distribution, technical data management, maintenance, training, cataloging, configuration management, engineering support,

repair parts management, failure reporting and analysis, and reliability growth.”<sup>2</sup> In a competitive sourcing guide, the Product Support Reengineering Implementation Team combined these 11 product support functions into the following 8 product support components: materiel management, supply, maintenance planning and execution, technical data management, training, technical support, data systems, and modification management.

DoD Regulation 5000.2-R defines “program support” as including a broader range of support categories. Program support in the ORD includes maintenance support for hardware and software for mission and support equipment; supply support (e.g., provisioning strategy, special packaging and handling); manpower, personnel, and training (e.g., training devices and training logistics); and system safety and health hazards support. In addition, this definition includes command, control, communications, computers, and intelligence (C4I) support; transportation and basing support; standardization, interoperability, and commonality planning; mapping, charting, and geodesy support; and environmental support.<sup>3</sup>

The Office of the Secretary of Defense (OSD) Cost Analysis Improvement Group (CAIG), *Operations and Support Cost-Estimating Guide*, May 1992, provides support categories for satisfying the *Product Support for the 21st Century* report and ORD requirements. This guide provides standard cost element structures and definitions for support functions for generic systems and for specific types of weapon systems, including aircraft, ships, missiles, combat vehicles, and electronic systems. By primarily relying on the CAIG’s cost element structure as a means for identifying and defining product support functions, the PMOLCS Study Group included all cost areas routinely accepted as necessary for achieving a comprehensive and complete O&S cost estimate.

## SUPPORT FUNCTIONS APPROPRIATE FOR PM CONTROL

The seven CAIG cost elements—mission personnel, unit-level consumption, intermediate maintenance, depot maintenance, contractor support, sustaining support, and indirect support—satisfy a need for a systematic approach to provide PM cost visibility of support functions. The rationale for PM visibility or control in each cost element is addressed.

*Mission personnel.* Operational commanders must have the flexibility to employ mission personnel as they see fit to accomplish their missions. However, as mission personnel represents the largest cost element for many weapon systems, PMs

<sup>2</sup> U.S. Department of Defense, Product Support Reengineering Implementation Team, *Product Support for the 21st Century*, July 1999.

<sup>3</sup> U.S. Department of Defense, *Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information System (MAIS) Acquisition Programs*, DoD Regulation 5000.2, 15 March 1996, Appendix II.

must have visibility of the costs and cost factors (e.g., operational tempo maintenance notes).

*Unit-level consumption.* Unit-level commanders are best qualified to determine the fuel, reparable, training munitions, and other consumable and repair parts required for training, readiness, and mission success. However, because unit-level consumption typically represents the second largest element of O&S costs, PMs must also have visibility of the costs and cost factors to formulate viable plans for cost reduction.

*Intermediate maintenance.* Organic intermediate maintenance is generally performed on a short turnaround within or approximate to an operational unit. The operational commander should control intermediate maintenance because it has a direct bearing on unit readiness. However, because these costs may represent a significant portion of weapon system O&S costs, the PM should also have visibility of the costs and cost factors to propose cost reduction initiatives.

*Depot maintenance.* An objective of the PMOLCS pilots is to determine an appropriate degree of PM oversight of life-cycle support. Successful depot maintenance is a function of the degree of the project management skill employed to meet customer demand. PMs are in the position to evaluate and, in consultation with the warfighters, trade near-term depot-level repair expenses with long-term investments to increase weapon system reliability and maintainability and reduce O&S costs. Savings through these investment tradeoffs and more effective cost, schedule, and performance management can be used to incentivize additional savings through win-win agreements between the PM and warfighter. Depot maintenance costs are appropriate for PM visibility and control, with the degree of control varying by type of system.

*Contractor support.* PMs work with functional representatives to establish interim and long-term contractor support during initial weapon system acquisition. This support can include depot maintenance, and in some cases, organizational and intermediate activities. It can also include contracts for training and supply. If the contract is system-specific, the PM should oversee the contract. If the contract supports multiple systems, the PM's training in and access to contracting for major weapon systems also make the PM the logical choice for controlling contractor support of legacy systems.

*Sustaining support.* Expenditure decisions for sustaining support resources are best made by the warfighters working directly with the PM and in coordination with the logistics functional representatives. PM control of most sustaining support resources enables the warfighters to make decisions and adjust priorities among support equipment, modification kits, sustaining engineering, software maintenance, and other recurring costs to achieve the required level of availability and functionality for the weapon system. Because simulator operations immediately affect unit-level readiness, operational commanders should retain control of



this element. However, PMs must have visibility of the costs of simulator operations to consider them in their cost reduction and improvement plans.

*Indirect support.* Indirect training and installation support may not be geared toward a weapon system and must be examined on a case-by-case basis for PM visibility and control. However, even the most indirect of the costs are determined by the amount of manpower required to operate, maintain, and support the weapon system. Thus, the PM can influence costs by modifying systems and instituting other business process changes to reduce manpower requirements. To make appropriate tradeoffs, PMs must have visibility of costs, including the identification of headquarters and personnel expenses funded by working capital funds (WCFs) to their weapon systems.

## COST BASELINES

The PEO/SYSCOM survey indicates that approximately 80 percent of the respondents believe that a post-fielding verification of ownership costs should be conducted to verify if the amount approved at Milestone III has remained constant or increases have occurred (see Appendix F). The survey results also show that 85 percent of the respondents believe that a baseline should be established at Milestone III to measure O&S cost savings. Because the cost-estimating guide provides a commonly accepted format for structuring O&S costs for new systems, it can be used to establish a baseline for legacy systems. Using the same format for new and legacy systems will ensure reporting consistency throughout the acquisition process and allow PMs to verify if product support costs approved at Milestone III properly account for support costs after the system is fielded.

## SUMMARY

Product support includes all the functions to maintain the readiness and operational capability of the system. The total system includes the equipment (hardware and software) and people (operators, maintainers, and support personnel) to support the system or subsystem. The sources of support may be organic, contract, or a combination. Costs for support functions are controlled (directly and indirectly) by organizations throughout the support structure. Because different organizations are responsible for the organic and contract support costs at different levels in the support structure (e.g., unit, intermediate, and depot), the CAIG cost element structure provides an appropriate framework.

Unless a cost baseline is established, the PM cannot track and control support cost changes. The cost-estimating guide provides an accepted format for structuring O&S costs for new systems and can be used to establish a baseline for legacy systems. PMs can use the support cost visibility to isolate and use cost factors to reduce TOC.

## Chapter 3

# PMOLCS Construct: Program Manager Oversight and Control

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### OVERVIEW

The PM decision-making environment is not clearly defined because of the interconnectivity between all aspects of weapon system life-cycle costs. For example, mission personnel are interconnected with unit-level consumption, intermediate maintenance, depot maintenance, training, safety, and environmental functions. Making a decision to affect any of these functions has anticipated and unanticipated impacts on other functions in the product support elements to the detriment of responsive, flexible, and accurate logistics requirements.

Reducing costs is also a challenge because cost responsibility resides in functional organizations. One organization controls depot maintenance; another, acquisition; another, warfighting; another, personnel; another, transportation; and another, supply. Each organization has initiatives it seeks to implement and interests it wants to protect. The warfighters have been caught in this web, trying to meet mission responsibilities while finding creative ways to cut costs.

To allow the warfighters to focus on warfighting, they need an agent to deal with the web of complexity and reduce O&S costs. The PM would act as the agent by interfacing between the warfighter and support communities. This interface would enhance communications and improve cost and readiness visibility.

Additionally, product support decisions in one function during the O&S phase can affect product support quality and costs in another function. Yet, unlike the integrated product team (IPT) construct used during the acquisition phase, no unified organizational structure is responsible for managing Defense products and associated costs throughout all phases of a product's life cycle. Frequently, the PM, the warfighters, and the support community do not establish a coordinated and integrated decision-making forum for managing the cost factors throughout a life cycle.

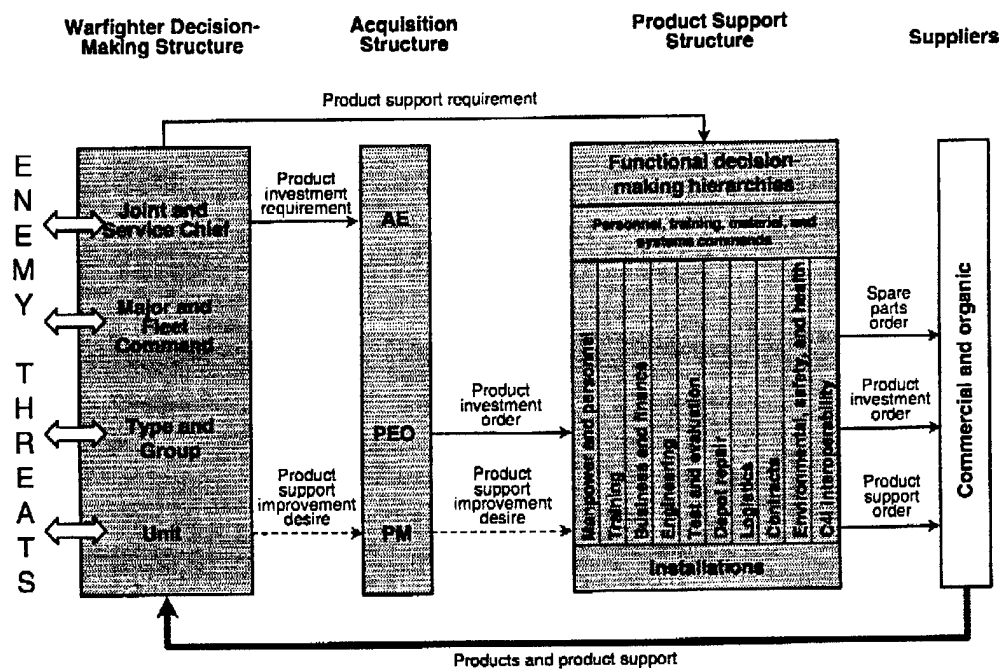
Although the PMOLCS construct should apply to all stages of a systems life cycle, this chapter focuses primarily on fielded systems. It describes the "as is" environment and opportunities for improvements. It also presents the PMOLCS recommendation for a unified organizational structure responsible for managing Defense products and associated costs through product life cycles. The IPT is the appropriate vehicle for the PM to provide leadership in all stages of a system's life cycle.

The study group found that all support functions are appropriate for PM visibility, as discussed in Chapter 2, and several are appropriate for direct PM control. Similarly, attendees at the PEO/SYSCOM Workshop in April 1999 suggested pursuing control strategies after achieving cost visibility.

## “As Is” ENVIRONMENT

Figure 3-1 depicts the product acquisition and support decision-making process as it exists. Generally, the Defense or Component Acquisition Executive (AE) is responsible for acquisition decisions of a new system, and the Service Chief is responsible for the operation and support of the system after it has been fielded.

Figure 3-1. “As Is” Product Management Decision-Making Environment



## Warfighter, Acquisition, and Product Support Interface

The PMs and warfighters have opportunities to establish goals and constraints for product support and associated requirements early in the acquisition process.

- ◆ They establish support requirements in the ORD. The Service Chief (or DoD Component Head) approves the requirements. The Joint Requirements Oversight Council validates the requirements.

## *PMOLCS Construct: Program Manager Oversight and Control*

- ◆ They also prepare the acquisition program baseline at program initiation. The baseline contains cost, schedule, and performance parameters. Although a parameter for product support may be included in the baseline, it is not required.

By using the CAIV strategy, cost and requirements tradeoffs are an integral part of the product acquisition process. However, although the opportunities for establishing O&S cost baselines early in a product's life cycle exist, they are not fully exploited. For example, equipment A has an acquisition cost of \$500,000 and requires 4 weeks of training per operator and maintainer. On the other hand, equipment B has an acquisition cost of \$600,000 but only requires 3 days of training per operator and maintainer. Barring the formal incorporation of O&S cost considerations into the acquisition process, we tend to procure equipment A, although the TOC of equipment B may be substantially less and customer utility substantially higher.

### Product Support and Supplier Interface

Current policies and regulations seriously constrain supplier options for the PM to satisfy product support requirements. Frequently, only one source of supply, whether organic or commercial, is available. Support purchases are fragmented because training, spare parts, support equipment, and repair parts are generally procured in separate, relatively small-value transactions. With these conditions, the government becomes a "price taker" rather than a "price maker."

### Product Support Business Practices

Current product support business practices fail to tie all elements of weapon system support together to meet changing warfighter demands efficiently. They constrict efficient weapon system response to environmental changes as they attempt to gain scale economies and flexibility among systems. The PM must be able to respond to emergent customer priorities by realigning resources among product support functions for a system. To the extent that business practices impede a PM from responding to customers effectively, the practices and associated systems should be revised.

Organic organizations and commercial activities are the suppliers. During the acquisition phase, representatives from the warfighter community and all appropriate functional disciplines participate in PM-led IPT. Functional IPT representatives are empowered and authorized, to the maximum possible, to make commitments for the organizations or functional areas they represent. This management construct has been very successful for the acquisition phase, but has not yet been established for the O&S phase because of the lack of visibility and accountability for management of sustainment funds.

## LACK OF COST VISIBILITY

To control product support costs, the PM, as well as the warfighters and the support community, must be able to see the costs. Our current programming and budgeting systems provide virtually no visibility of weapon system O&S costs. The Visibility and Management of Operating and Support Costs (VAMOSC) system collects a substantial amount of actual O&S costs, particularly in the CAIG cost elements of unit consumption, intermediate maintenance, and depot maintenance. However, VAMOSC fails to capture most costs that can be tied directly to a weapon system in the elements of contractor support, sustaining support (including sustaining engineering support and software maintenance), and indirect support (including training and installation support). Information from the cost collection systems that exist for product support functions is not routinely available to the PM.

Because of the interdependency between product acquisition investments and support costs and among the support costs, the PM should have visibility of the range of product support costs. For example, investments that significantly improve reliability and maintainability typically reduce the demand for mission and intermediate maintenance resources. Additionally, reducing the number of personnel at the mission and intermediate maintenance levels affects indirect support costs. This ripple effect may be experienced in support functions, such as maintenance training, permanent change of station moving expenses, installation services, medical care, and recruitment.

DoD's product support functions are so interconnected that attempting to save costs in one area often only serves to increase costs in another. For example, varying supply levels affects maintenance costs. A change in maintenance philosophy affects not only base operations but also depot activities. Therefore, the only practical approach to managing life-cycle support functions is through a total system approach with total cost visibility throughout the life cycle.

## LACK OF COORDINATION AND CONTROL

O&S costs typically represent 60 to 70 percent of a weapon system's TOC. In FY 1998, DoD logistics support for maintenance, supply, distribution, and transportation consumed more than \$85 billion. More than \$60 billion were directly tied to product support, and more than 875,000 personnel (military and civilian) were involved in product support.<sup>1</sup>

After systems are fielded, PMs typically retain overall responsibility for the systems, but lose control of significant portions of funding required for proper support. Funding control for product support is typically divided among several functional organizations. For example, one organization is responsible for manpower, another for training, another for repair parts and spares, and another for

<sup>1</sup> U.S. Department of Defense, Product Support Reengineering Implementation Team, *Product Support for the 21st Century*, July 1999, pp. 1-2 and D-1.

### *PMOLCS Construct: Program Manager Oversight and Control*

depot repair. Often organizational interests work at cross-purposes and are not easily integrated. Data accuracy also affects the effective level of PM funding control.

The current process is tangled and intertwined. As a result, identifying whom is responsible for costs is difficult. For example, the F-16 System Program Director maintains visibility of research, development, test, and evaluation; production; contract services; maintenance sustainment engineering; and software maintenance. These cost categories only constitute 14 to 17 percent of product support costs. An informal survey of the warfighter community indicates the warfighters also believe they control about 16 percent of program costs.

Similarly, the Navy CG-47 Class Ship TOC was \$75.8 billion in FY 1998. The O&S phase included 63.3 percent (\$47.98 billion) of the TOC; however, the PM had no control over 82 percent of the O&S costs and only minimal influence over 18 percent of the remaining O&S cost elements.

Therein lies the problem: Nobody is responsible for 100 percent of the costs. Cost responsibility should be assigned based on the operational requirements and mission of each system. In the past, because emphasis has been placed on operating and maintaining systems, cost responsibility has been clarified. By requiring the PMs and warfighters to enter into formal commitments, accountability for all costs is created. Each system can be different with unique responsibilities for costs. The important issue is that each cost element is identified for the PM, warfighter, or support community to be responsible and accountable.

Therefore, the study group believes that PM needs, in order of priority,

- ◆ cost visibility,
- ◆ emphasis on accountability for cost control by the Services, and
- ◆ responsibility for the control of the designated costs.

#### **LOST OPPORTUNITIES**

If given a choice between funds being spent for spares on a weapon system or a component that will soon be out of service or a commercial-off-the-shelf technology insertion for increased reliability, maintainability, and performance, the customer may prefer the latter. However, a PM without direct control of spares or sustaining engineering funds is unable to offer or act on the customer's preference. Likewise, if the PM applies more modern asset and project management tools to lower depot maintenance costs for a weapon system, the warfighter may prefer to apply resources toward an accelerated buyout of a system modification. The warfighter believes the redirection will purge a cost factor, yielding an increase in readiness and a decrease in safety risk. However, the PM, typically lacking direct control of depot maintenance resources and authority to accelerate a

modification based on customer priorities, is unlikely to pursue such an initiative. Effective control is contingent on the availability of accurate cost and usage data.

These types of decisions would have little or no immediate adverse impact on readiness, would reduce maintenance hours, perhaps enhance readiness in the near term, and would eventually free O&S resources for modernization. If allowed to occur routinely throughout DoD, such actions would tend to reduce average equipment age, reduce the demand on O&S resources, and enable a more robust modernization program.

## “TO BE” ENVIRONMENT

The PEO/SYSCOM survey results indicate that 85 percent of the respondents believe that the warfighter should establish goals and constraints for O&S costs early in the acquisition process. In the context of the PMOLCS construct, the PM-led IPT defines the product. The PM, as product manager, aligns and uses resources as appropriate to deliver the product to the warfighters when they need them at a cost they can afford. Through this new dynamic, the warfighters can respond far more quickly, efficiently, and decisively to a rapidly changing threat environment.

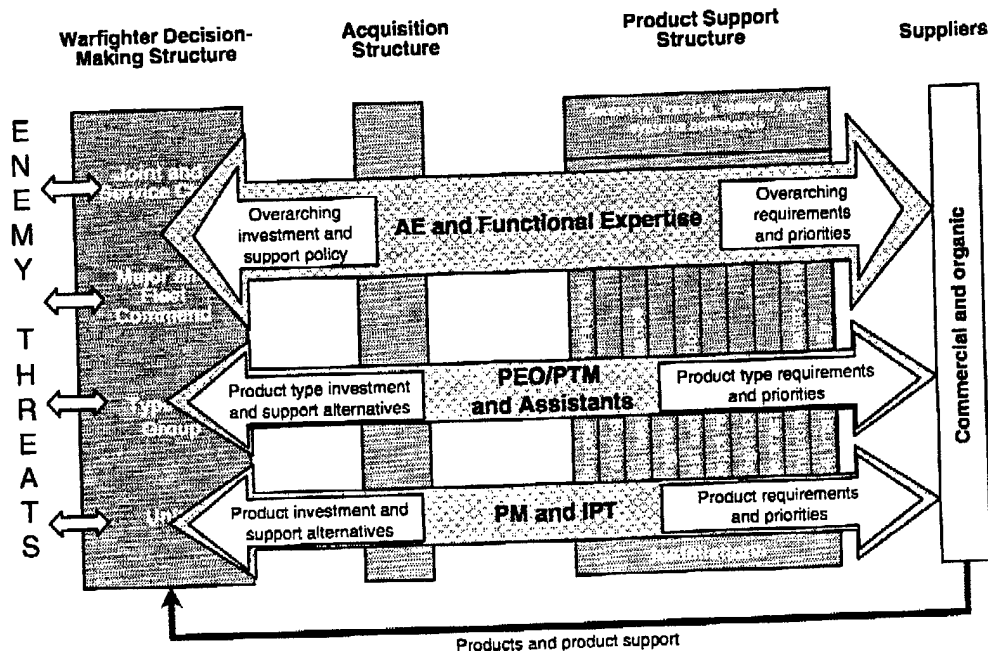
## A New Work Environment

Figure 3-2 depicts the new product management environment. The product support community avoids the pitfalls associated with vertical or horizontal “stove pipes” by using an IPT approach focused on community agreements.

Of central importance in the new product management structure is the PM’s interface with the warfighters and support community. The warfighters’ role does not change in the PMOLCS construct: The warfighters are the customers. The warfighters have the highest stake in a weapon system’s performance, including its safety, reliability, and maintainability. In our model, the warfighters make the final decisions among investment and product support alternatives. They will do so with full awareness of the probable costs, benefits, and timelines.

## PMOLCS Construct: Program Manager Oversight and Control

Figure 3-2. "To Be" Product Management Decision-Making Environment



Note: PTM = product type manager.

### ROLE DEFINITIONS

The "to be" environment includes the following roles and definitions:

**PM.** A PM is the individual assigned to manage a weapon system during its life cycle. The role of a PM is to act as the interface between the warfighters and the support community. Through personal knowledge and experience and as leader of a team of functional experts, the PM provides the warfighters with the status of investment plans and presents an analysis of cost-benefit tradeoffs associated with product support alternatives. The PM is responsible for satisfying warfighter product support requirements. The PM is the product manager.

**IPT.** An IPT is the cross-functional logistics organization based on partnerships among the warfighting, acquisition, product support, and supplier communities. The IPT ensures that product support strategies are integrated properly into weapon system plans.

**PEO.** A PEO is the PM's immediate superior in the acquisition and product management chain of command. The PEO acts as the interface between the warfighters and the support community for a weapon system and advises and directs the PMs under his or her cognizance in product management. The PEO is the product type manager (PTM) who is similar to the commercial sector's category manager.



**AE.** An AE is the civilian head of the acquisition and product management function for DoD or a Component. The AE interfaces with the Chairman of the Joint Chiefs of Staff, Service Chiefs, and supplier executives on matters related to overarching product management requirements and strategies. The AE also trains, develops, advises, and directs the PEOs under his or her cognizance in product management. The AE is the Senior Acquisition/Product Management Executive (SA/PME).

#### **WARFIGHTER, ACQUISITION, AND PRODUCT SUPPORT INTERFACE**

The second thrust of the PMOLCS Study Group is to implement formal commitments for product support through agreements among warfighters, PMs, and the support community. The following illustration explains how critical interfaces facilitate commitments.

The warfighters defines, revises, and prioritizes requirements, while the PM acts as the product support manager and presents investment and support alternatives and associated costs. Agreements and commitments would be formal and enforceable, thereby avoiding a conflict of interest, closing loopholes so responsibility cannot shift from one party to another, and providing a system of checks and balances.

The PM interfaces with the warfighter and support communities through periodic personal conferences at the warfighter's location, through the IPT via telephone, electronic mail, video teleconferencing, and other means in fulfilling his or her management responsibility. The PEO (or PTM) interfaces with the warfighter through periodic personal conferences at the warfighter's location and through other personal and telecommunications vehicles.

The PM-warfighter interface occurs on several levels. The primary level is the unit. PMs interface directly with the commanding officers of ships and ship squadrons, aircraft squadrons and wings, and ground combat battalions and regiments. The PEO (or PTM) interfaces directly with the commanders of air wings, naval groups, brigades, and divisions. The SA/PME should interface with the senior Service leaders.

The warfighters should not have to deal with disparate organizations that have independent interests. Cost decisions may lead to unforeseen effects that result in cost increases. Consistent with the PMOLCS construct, the roles, responsibilities, and operating relationships between the warfighter and the PM (or PTM) are formalized by a memorandum of agreement.

#### **PRODUCT SUPPORT AND SUPPLIER INTERFACE**

Reducing supplier costs requires policies that enable PMs to choose freely among sources of supply based on best value to the customers, thereby infusing the process with greater competition. Lower supplier costs also require that PMs, PEOs,

## *PMOLCS Construct: Program Manager Oversight and Control*

and systems and materiel commands be able to consolidate support packages into high-value orders to enhance the government's negotiating position relative to suppliers.

Organic sources of supply remain in the WCF. By allowing the PM to choose a source of supply, WCF suppliers compete to retain PM business by slashing overhead; increasing service quality; and instituting more convenient, streamlined business processes. This approach improves support quality and lowers support costs to users even if the PM chooses to retain organic suppliers. These changes also exert a powerful reducing effect on the organic support infrastructure.

On the other hand, organic lines of supply have inherent advantages in this new product support environment. To enable the warfighters to enjoy these inherent advantages and derive best value in this new environment, organic suppliers should be free to reconfigure workforce, consolidate, partner, adjust pricing and product offerings, and use generally accepted accounting principles—similar to a commercial business.

Commercial sources are selected on best value. Where substantially greater value or lower cost is achieved through a long-term multiyear contract, the IPT should weigh the risks in relation to the potential value and capability gain and arrive at a judgment in their best interests.

## **New Policies**

### **PM-WARFIGHTER INCENTIVES**

The Services need to provide product life-cycle cost or TOC reduction incentives that consider mission capability and cost requirements. In the case of PMs and PTMs, the ideal incentive is the flexibility to deliver products and product support packages to their customers better, faster, and at less total cost than originally planned. In the case of the warfighters, the ideal incentive is the ability to obtain required products and product support of consistently higher quality, faster, and at lower cost than previously planned or experienced. The incentive policy for reducing life-cycle costs must be structured accordingly.

To institute a set of incentives, policy changes must be made. Except in the case of new production systems that have quantities specified in the appropriations act, the PM should be able to exceed quantities up to the amount budgeted and programmed for the system. If PMs can achieve acquisition and product support requirements faster and better by changing the type of program funds up to a specified amount, they should have the authority. If exceptionally innovative and tenacious business practices result in program savings, the PMs and warfighters should have the authority to apply at least a portion of the savings toward program acceleration or the satisfaction of other high-priority, unfunded warfighter requirements. Similar policies should be encouraged. To institute continuous acceleration, cost reduction, and quality gains in the acquisition and support of

warfighter products, the gains must be encouraged by establishing policies that motivate PMs and warfighters.

Establishing these policies will result in win-win outcomes. They will increase warfighting capability, lower unit and life-cycle costs, and make available more savings for emergent requirements, thus increasing the flexibility of the process.

## FINANCIAL STRUCTURE

The O&M budget structure should correspond to the PEO and PTM structure, which corresponds to weapon systems and operating unit types. This link would bring increased personal accountability, strategic management capability, and defensibility of the O&M budget. PMs would be identified by program elements (PEs). Project codes, another budget and accounting structure, would be consistent with PEs. Sustaining engineering and sustaining logistics weapons maintenance, depot maintenance, and non-training O&M costs directly associated with supporting a weapons system should be captured in the system's PE. Congressional special interest item amounts (e.g., depot maintenance) would be recorded using special interest coding.

This restructuring of the O&M budget would increase the flexibility of the Services and warfighters. Restructuring of the O&M budget will also allow DoD and Service leaders to manage O&S costs more strategically. Another advantage of restructuring the O&M budget is to allow the acquisition community greater responsiveness in applying readiness solutions for legacy systems. The upgraded VAMOSC system could capture these costs using the coding and systems for programming, budgeting, and financial accounting.

## Additional Benefits of the PMOLCS Construct

### FUNDING STABILITY

The third thrust of the PMOLCS Study Group concerns ways to improve the stability of program funding to realize the benefits of public and private long-term capital investments. The following steps illustrate techniques that can enhance funding stability.

Funding instability is often the result of a changing threat, technology, or national priorities. The proposed PM visibility and control of product support function funding should help to reduce adverse effects on product support strategies that result from O&M funding instability. In DoD's current budget and cost structure, making a link between a reduction in O&M funds and the effect on availability or functionality of a weapons system is difficult. With the new financial structure, the link will be more easily established and apparent. Thus, unintended adverse consequences should be reduced.

## RESULTS ACCOUNTABILITY

Each Service manages several programs that centrally evaluate and fund cost reduction and reliability and maintainability enhancement proposals. A common shortcoming is a lack of fidelity and integrity of supporting data and the inability to compare actual to projected savings. Decisions are typically based on key quantitative information and ratios, such as the savings-to-investment ratio, return on investment, payback period, and net present value. However, although investments are generally considered to be appropriate when the decisions are made, no follow-on mechanism ensures accountability for results.

In the proposed model, as part of periodic PM meetings with the warfighters to discuss resource application alternatives, the PM could present a portfolio of recommended life-cycle cost-reduction initiatives. The warfighters have a major stake in the credibility and fidelity of the supporting data presented by the PM because the data are used to make expenditure decisions. PMs, relying on the cost analysis community, would typically use well-established quantitative information and ratios in presenting alternative life-cycle cost and TOC reduction proposals. On the other hand, because the warfighters can apply savings to meet other unfunded wants and needs, they have a strong, direct interest in selecting life-cycle cost reductions. The problem of accountability for results would be resolved as a result of this process. In cooperation with the PM, the warfighters would have a direct interest in tracking actual to predicted results through the means and at the level of detail they deem appropriate. Accountability would rest clearly with the PM. Life-cycle cost-reduction proposals supported by the warfighters in principle but that the warfighters view as lower priority than elements of the program already funded can be elevated to higher levels of decision-making authority as a normal part of the Program Objective Memorandum (POM) process.

Another precondition is an O&M budget control structure that provides reasonable confidence to PMs and the warfighters that weapon system funds aligned and successfully defended during POM and budget formulation are available in execution. This financial structure will involve PMs and PEOs more directly in O&M budget formulation and review.

Generally, this model would subsume initiatives from existing programs to centrally evaluate and fund competing cost reduction and reliability and maintainability enhancement proposals, such as logistics engineering change proposal, O&S cost reduction, fast capability, and value engineering. These initiatives would compete with other life-cycle cost-reduction initiatives in a PM and warfighter decision-making forum. The standard model for selecting life-cycle cost-reduction alternatives should be arrayed along weapon system lines with direct PM accountability to the warfighters.

Accountability for costs and cost tracking is highlighted throughout this report. Responsibilities should be divided evenly. PMs have equal responsibility with

their customers in terms of accountability. All are subject to audit. The financial community must establish the framework so that the data will be available.

#### OVERSIGHT OF COMPETING MANAGEMENT INITIATIVES

As the Department considers options for reengineering and competing product support functions, PMs need insights into how manpower and personnel management initiatives affect business practices in the support structure. When PMs target commercial support functions for competition, the targeted activities may include exempted manpower that will have to be realigned to other activities to allow for competition. Shifting military manpower to other organizations may increase the costs in the other mission areas. PMs often lack insight into how resources are managed and cannot properly identify the effect that O&S reduction strategies have on product support costs. Costs that are outside the PM's purview are typically characterized as "hidden costs." A better understanding of how resources are managed will enable PMs to assess if proposed improvements reduce O&S costs or merely shift costs to other support areas.

#### FOREIGN MILITARY SALES: EXAMPLE OF "TO BE" PMOLCS CONSTRUCT

A significant finding at the PEO/SYSCOM Workshop in April 1999 is that several PM and SYSCOM representatives believe that the best process of enhancing program management is to give the PM oversight of information on foreign military sales (FMS) or classified environments.

The concepts advocated in the PMOLCS construct of product support have been tested and are operating successfully in FMS programs. The customer (a foreign government) determines support requirements, and the PM prices support options. The customer and the PM negotiate the options and associated costs. For example, if the customer chooses organic training, the PM charges the customer the direct costs and a portion of indirect costs associated with the training. Otherwise, the customer establishes its own organic training or contractor training. Similar options are evaluated in terms of spares and repair parts, software support, and depot maintenance.

Negotiations between the PM and the customer result in a letter of agreement (LOA) that provides nearly 100 percent visibility of all aspects of the FMS cost. Lines of authority are streamlined with execution authority passing from the FMS customer, through the case manager, to the PM. The LOA forms the structure of a "contract" to all other organizations that provide support. The LOA has line items for training and support, including spare parts. The FMS PM has full execution authority for the LOA. The customer, to keep pace with the program, supplies funds for the LOA. Funds flow to match the requirements for executing the program.

### *PMOLCS Construct: Program Manager Oversight and Control*

This product support management process is exceptionally efficient. For example, the value of the F-16 Taiwan Program is \$3 billion for the production of 150 aircraft. A program office cadre of 20 persons manages the program. Feedback from the customer is generally very positive. The program is ahead of schedule. In comparison to a standard U.S. Air Force acquisition program that produces an aircraft in 48 months, the Taiwan Program completed its first aircraft production in 30 months. The program has also met forecasted costs with each aircraft well within the LOA value.

## **SUMMARY**

The PMOLCS construct and the timeline for its development and refinement show how PMs, warfighters, and the support community can address three of the four Section 816(a) Report thrusts: visibility, formal commitments, and funding stability. The remaining thrust suggests that these organizations must effectively manage the cultural change to improve product management of life-cycle support. Execution of the 30 pilot program implementation plans will start the process of cultural change. However, Department policy and cultural change must await completion of the pilot tests, Product Support Reengineering Implementation Team Phase II action plans, and the analysis of results of the tests and plans in FY 2002.

## Chapter 4

# PMOLCS Study Group Recommendations

A substantive change in the role of PMs in the life cycle of systems requires a long-term, sustained effort. Substantive changes mean redefining the roles of multiple, powerful communities within and external to the Department that are defined by custom, law, and organizational structures developed over decades. However, because of the expected advantages of having a product focus on system life-cycle management, the Department is pursuing a change in the role of PMs. As with any challenging task, the initial steps are very important.

The first PMOLCS steps are to test new ideas, measure the results, develop appropriate new policy, and change the culture. It is with this spirit that the study group makes its recommendations.

Early in the study, participants identified the need to recommend that the TOC of new weapon systems be a critical parameter. Thus, the study group developed the following recommendation:

*Recommendation 1. The community of acquirers, warfighters, and supporters should agree on a system TOC that is a critical parameter in the system operational requirements document.*

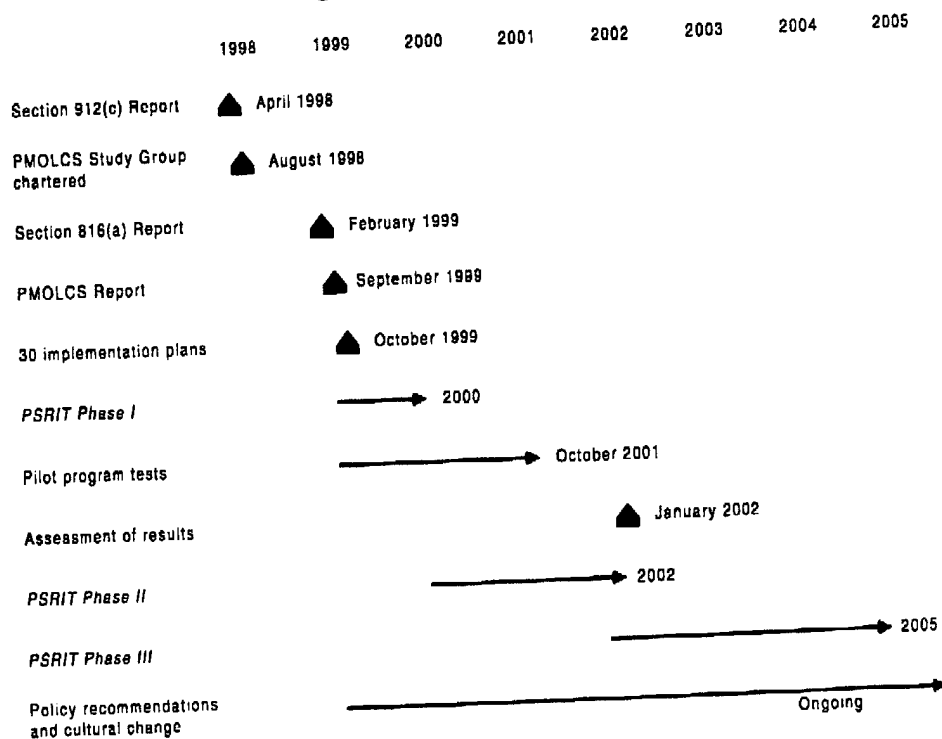
At the same time, the Requirements Generation and Acquisition Study Group developed this recommendation in its report. Therefore, the PMOLCS Study Group affirms the recommendation but does not address it further.

The PMOLCS construct provides a basis for the second recommendation.

*Recommendation 2. The Military Departments will, as appropriate, test the concepts and implied policies, practices, and procedures of the PMOLCS construct in various combinations in their Section 912(c) pilot programs. The Military Departments will report and assess results of the pilot program tests by 1 January 2002.*

Recommendation 2 parallels the timing of the Product Support Reengineering Implementation Team's (PSRIT's) Phase II, *Implement Pilot Integrated Supply Chains*. A timeline for continuing to refine and implement the PMOLCS construct is the basis for the third recommendation (Figure 4-1).

**Figure 4-1. PMOLCS Timeline**



Note: The three PSRIT phases are I, establish the new product support environment; II, implement pilot integrated supply chains; and III, implement full-scale integrated supply chains.

**Recommendation 3.** *The chairperson of the Reduction in Total Ownership Cost Working Group will monitor the Military Departments' tests. As appropriate, the chairperson will review results, develop legislative proposals and policies, and ensure cultural changes to implement program manager oversight of life-cycle support.*



## Appendix A

# Charter for the Program Manager Oversight of Life-Cycle Support Study Group

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## INTRODUCTION AND BACKGROUND

In today's environment, most Program Executive Officers (PEOs) and Program Managers (PMs) have direct responsibility and control of funding for development and fielding weapon systems and equipment. Once the system or equipment is fielded, the PM retains overall responsibility for the system or equipment, but loses control of significant portions of the funding required for support. This practice results in much higher life-cycle costs than should be the case, because the PEO and PM have no incentive to take action, during development or modification of the systems, to design into the equipment features that will improve the reliability, availability, and maintainability of the fielded systems; and it divides the responsibility for system support among many agencies. Responsibility for operations and support costs is important to incentivize proper tradeoffs during development, acquisition, modification and to control total ownership cost. Funding control improves program stability and allows PMs to optimize the effectiveness of and support for, their weapon system.

## AUTHORITY AND DIRECTION

Secretary of Defense letters to the President of the Senate and the Speaker of the House of Representatives, dated 1 April 1998, forwarded a report to Congress, *Actions to Accelerate the Movement to the New Workforce Vision*. In paragraph 2.4 of the report, which addresses an initiative to *Establish Program Manager Oversight of Life-Cycle Support*, the Secretary states that he will direct the Secretary of each Military Department to designate at least 10 significant (i.e., large operations and support cost) programs for which the PM will be made responsible for ensuring that the product support functions are properly carried out over its entire life cycle.

The Director, Acquisition Program Integration (D, API) is directed to establish a Study Group to report to the USD(A&T) on what policy changes, if any, are needed to implement fully this initiative. The Study Group membership shall include representatives from the Office of the Secretary of Defense staff, the Military Departments (including PEOs and PMs), the Joint Staff, the Commanders in Chief (CINCs), and the Defense Agencies. The team members shall be selected to ensure resource management, operational, and functional perspectives.

## STUDY OBJECTIVES

The Study Group will conduct a review of the adequacy of current policy to implement fully this initiative. The Study Group shall be guided by, but not limited to, the following objectives:

1. *Identify product support functions (e.g., supply, maintenance, and transportation) for a weapon system or equipment, the organizations that are responsible for the costs of that support function, and policy documents that authorize that control.*
2. *Determine which of the support functions are appropriate for the PM to control in order to reduce life-cycle costs.*
3. *Determine what changes need to be made to the policy documents, procedures, or practices that will enable the PM to control the costs of the support functions.*

## SCHEDULE

The Study Group will:

- ◆ Provide a progress report to the D, API, by 1 December 1998.
- ◆ Provide a draft final report to the D, API, by 16 January 1999.
- ◆ Report its conclusions and recommendations to the USD(A&T) by 26 February 1999.<sup>1</sup>

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<sup>1</sup> Correspondence from USD(A&T) and the OSD staff amended these dates.

## Appendix B

# Pilot Programs and Management Actions Summary

The following three tables display the pilot programs and associated management actions by Military Department.

*Table B-1. Army Pilots and Management Actions*

Management actions	Program name									
	AH-64	M1	AFATDS	M109 Family	HEMTT	Crusader	M113 Family	RAH-66	MLRS HIMARS	TOW ITAS
Provide PM more detailed and increased visibility of overall O&S funding	X	X		X	X	X	X	X	X	X
Transfer control of appropriate O&S funding to the PM	X	X	X	X	X	X	X	X	X	X
Provide investment funds to the PM to reduce life-cycle costs	X			X	X	X	X	X	X	X
Improve program funding stability	X	X	X	X	X	X	X	X	X	X
Integrate new product support processes with customer and warfighter requirements	X	X		X	X	X	X	X	X	X
Reengineer WCF to support a product management focus	X	X	X	X	X	X	X	X	X	X
Allow PMs to retain a portion of savings for reinvestment in other savings programs	X	X	X	X	X	X	X	X	X	X
Implement the Apache Prime Vendor Support program	X									
Include Corpus Christi Army Depot as a government-furnished service	X									
Place PM Abrams in charge of the Abrams Integrated Management XXI program; transfer Army WCF for Abrams turbine engine reparable to the PM		X								
Consolidate other customer resources under PMs		X								
Augment contractor logistics support with traditional logistics support		X								
Place control of Army legacy fire support (FS) command and control (C <sup>2</sup> ) systems and related assets under the PM			X							
Place oversight of Army Tech Base FS C <sup>2</sup> initiatives under the PM			X							
Place responsibility for Army FS C <sup>2</sup> operational requirements under one user, the U.S. Army Training and Doctrine Command			X							
Provide PMs more detailed and increased visibility of customer and warfighter FS-related initiatives			X							

Table B-1. Army Pilots and Management Actions (Continued)

Management actions	Program name									
	AH-64	M1	AFATDS	M109 Family	HEMTT	Crusader	M113 Family	RAH-66	MLRS HIMARS	TOW ITAS
Establish a contractor as fleet manager to support the Family of Vehicles (FOV) customers, while a government project officer provides interface with the contractor and performs oversight and liaison between the contractor and government agencies				X						
Use an Extended Source Program that identifies commercial technologies, evaluates design issues associated with implementing engineering changes, tests the proposed change on prototype vehicles, and obtains feedback from users					X					
Establish a partnership between PM Heavy Tactical Vehicle and Defense Logistics Agency activities with real-time information sharing of asset balances and status					X					
Identify the best source for sustainment products and services and integrate all providers into the integrated life-cycle support team						X				
Enter a 4-month proof of principal that allows PM oversight responsibility for life-cycle functions and focuses matrix support personnel on M113 FOV life-cycle missions							X			
Link support from the commodity business units for M113 mobility and mobility sustainment with the PM's collocated APM staff and the staff tied to M113 variants as IPTs							X			
Establish a life-cycle contractor support contract								X		
<sup>a</sup> Allow PMs to use broad contracting guidelines									X	
Establish one PM for product support to manage roles between MLRS/HIMARS and FMTV									X	
Approve conversion from interim contractor support to contractor logistics support for the life of the system										X
<sup>a</sup> Implement a rigorous Modernization Through Spares program										X
<sup>a</sup> Require PM to develop O&S baseline and objectives and monitor progress										X

Note: AFATDS = Advanced Field Artillery Tactical Data System; APM = Assistant Program Manager; HEMTT = Heavy Expanded Mobility Tactical Truck; HIMARS = High Mobility Artillery Rocket System; MLRS = Multiple Launch Rocket System; TOW ITAS = Tube-Launched, Optically Tracked Wire-Guided Missile System Improved Target Acquisition System.

<sup>a</sup> Coordination pending.

# *Pilot Programs and Management Actions Summary*

**Table B-2. Navy Pilots and Management Actions**

Management actions	Program name									
	Aviation Support Equipment	Navy H-60 Series	SLAM-ER	AEGIS	EA-6B	AN/BQQ-10	METOC	AMCM	AAAV	CVN-68 Class
Provide PMs more detailed and increased visibility of O&S funding	X	X	X	X	X	X	X	X	X	X
Require PMs to develop O&S baseline and objectives and monitor progress	X	X	X	X	X	X	X	X	X	X
Prioritize O&M funds by weapon system	X	X		X	X	X	X	X	X	X
Transfer control of appropriate O&S funding to the PM	X	X	X	X	X	X	X		X	X
Provide investment funds to PMs to reduce life-cycle costs consistent with Service priorities	X	X	X	X	X	X	X	X	X	X
Improve program funding stability consistent with Service priorities	X	X	X	X	X	X		X	X	X
Require PMs to enter into agreement with warfighter	X	X	X	X	X	X	X	X	X	X
Consider PM retention of a portion of savings along with other incentive mechanisms for reinvestment consistent with Service priorities	X	X	X							
Allow PMs to use broad contracting guidelines			X			X	X			
<sup>a</sup> Provide relief from depot workload and transfer restrictions					X		X		X	X

Note: AAAV = Advanced Amphibious Assault Vehicle; AMCM = Advanced Airborne Mine Countermeasures Equipment; METOC = Meteorology and Oceanography; O&M = operations and maintenance; SLAM-ER = Standoff Land Attack Missile—Expanded Response.

<sup>a</sup> Coordination pending.

**Table B-3. Air Force Pilot Programs and Management Actions**

Management actions	Program name									
	F-16	B-1B	C/KC-135	C-5	AWACS	SBIRS	CMC	F-117	JSTARS	C-17
Improve program funding stability	X	X	X	X	X	X	X	X	X	X
Improve and automate cost reporting systems to provide more detailed and increased funding visibility	X	X	X	X	X	X	X	X	X	X
Improve cooperative decision-making among operational, sustainment, and PM communities on efficient and effective resource application	X	X	X	X	X	X	X	X	X	X
Increase PM involvement in modification planning and prioritization	X	X	X	X	X	X	X	X	X	X
Allow PMs to optimize program funds and match funds to execution schedules	X	X	X	X	X	X	X	X	X	X
Provide PMs with greater influence over the source of repair assignment	X	X	X	X	X	X	X	X	X	X
Empower the PMs to enter into total system performance agreements with warfighters for their weapon systems	X	X	X	X	X	X	X	X	X	X
Establish policy and procedures to allow reinvestment of savings	X	X	X	X	X	X	X	X	X	X

Note: AWACS = Airborne Warning and Control System; CMC = Cheyenne Mountain Complex; JSTARS = Joint Surveillance and Target Attack Radar System; SBIRS = Space-Based Infrared System.

## Appendix C

# PMOLCS Study Group Membership

The following personnel attended one or more PMOLCS Study Group meetings. Bob Leach, DUSD(A&T)API/PM was the Study Group Team Leader. Colonel Scoop Cooper, U.S. Air Force (USAF), of SAF/AQF led the Study Group's Core Subgroup. Study group members marked with an asterisk also participated in the PMOLCS Core Subgroup.

Rich Aggers	OUUSD(A&T) DTS&E/SE
Hoot Albaugh	OSD(C)
Dick Anderson	Army SAFM-BUR
Barry Barefoot	Navy PEO(A)
Jon Baron	OUUSD(A&T) SADBUI
Pam Bartlett*	OSD(P&R)
Dave Baucom, Commander	The Joint Staff, J-4/SMPED
Pete Biesada	Navy OASN(RDA)
Joe Billman	Army DALO-RML
Don Bobby	BMDO/DCT
Carol Booth	Contractor (DRC) to SAF/AQ RTOC Program
Charles Borsch	Navy OPNAV N4
Patricia Brannin	DoD IG/OAIGA/AM
Garry Bublitz, Lieutenant Colonel	OSD/RA(M&P)
Ron Bulmer	OUUSD(A&T) DP/DSPP
Dean Bunkars, Captain	Navy OPNAV N801E
Vicki Carey	USSOCOM/VO
Trey Carson, Commander	Navy OPNAV N801R
Gary Christie	OUUSD(A&T)
Farol Clark	PEO-TSC/ANADAC
Connie G. Clavier	Navy NAVSEA PMS 317L
J. D. Clem, Lieutenant Colonel	USSOCOM/VO
Kathy Collier	OSD(C3I)/PA&I
Scoop Cooper, Colonel*	Air Force SAF/AQF
Jerry Cothran	Air Force AF/ILMY
Karen Croom	OSD(P&R)
Dan Czelusniak	OUUSD(A&T) API
Lynn C. Davis	Air Force AFCAA/FMF
Jim DeAngelis	Army ASA(FM&C) ASAFM-BUI-A
Jerry Derrick, Captain	DCMC
Max Dietrick	Army DAMO-FD-R

Pete Dingeldey	Contractor (CACI) to DUSD(L)/LRO
Tony Ditraperi	Contractor (CNA)
Karen Dunn	ODUSD(AR)
Steve Fahrenkrog, Captain	ODUSD(AR)
Tom Fergason	Army ASA(FM&C) SAFM-BMO-O
Lonny Flaharty	Army SARD ZD
Randy Fowler	ODUSD(L)/MDM
Don Frank	Contractor (LMI) to OUSD(A&T)AP/PM
Ron Garant	OSD(C)
Bill Gavora	Army OASA (RDA)
Fred Gilbert, Colonel*	OASD(SOLIC)F&R
Jim Giles	Contractor (LMI) to OUSD(A&T)AP/PM
Tom Gimble	DOD IG
Ed Greer	Navy PEO(A)/PMA271A
Rick Grube*	Army AMC RDA-PMSO
Arthur Haggler	Army SAFM-BUR
Chuck Harris	OSD(C) Opn & Per
Shawn Hawkins	ODUSD(AR)
Terry Hemminger, Lieutenant Colonel	Army DAMO-ZR
Kathy Hennes	NSA/CSS CIO(C2)
Hal Henry	OASD(C3I)
Larry W. Hill*	Army ODCSLOG/DALO-SMR
Walt Hosey	Air Force SAF/FMCE
G. Huchting, Rear Admiral	Navy PMS 400
Paul Hullinger	The Joint Staff, J-8/RAD
Linda Hutchison	Contractor (LMI) to OUSD(A&T)AP/PM
Willie Jones	Navy NAVSEA PMS 317L
Kris Jugler	Air Force AF/ILMY
Joe Klimavicz	NIMA
Bob Knetl	Navy ASN(RD&A)
Krysty Kolesar	OSD(PA&E)
Myrna Kroh	Army DAMO-FDR
Tom Kuntz	Navy PMS 400
Bob Leach*	OUSD(A&T)API/PM
Cathy Leach	Army AMC, AMCLG-LL
Ken Lindstrom	Contractor (LMI) to OUSD(A&T)AP/PM
Joel Manary	DSMC, Logistics
Paul Manz	Army FATDS Program Office
Jeff Martin, Lieutenant Colonel	Air Force AFCAA/FMF
Terry R. Mateer	Army USACEAC
Betsy McChesney*	Army SARD-RP
C. McNeerney, Lieutenant Colonel	Army ASA (RDA), DE
Lowell Naef	BMDO/POE



### *PMOLCS Study Group Membership*

Dave Oliver	USD(A&T)
Spiros Pallas	OSD(A&T) S&TS
Robert Palmer, Major	Air Force AFCAA/FMF
Roberta S. Peek	DUSD(L)/LRO
Glenn W. Plonk	NSA/CSS CIO(C2)
Joe Potts	Army OASA (RDA)
Ken Procter	OSD(PA&E)
Sue Quinlan	DCAA
Donna Richbourg	OUSD(A&T)AR
Eileen Roberson*	Navy ASN(RD&A)
Julia Ruhnke	Army PM FATDA
Ed Rule, Captain	Navy OASN(RDA)
Floyd N. Ryan*	Navy PEO-TSC
John Ryan, Captain	Navy PMA-271
Dennis Sacha, Lieutenant Commander	DCMC
Arthur Santo-Donato	Army FATDS Program Office
Donna Snead	BMDO/POE
Brian Solo	OSD(PA&E)
Cecilia Solomon	Army ASA(FM&C) ASAFM-BUI-A
Jim Stein*	ASN(RDA) ARO
Brian Stevens	Navy ASN(FM&C)
Don Tison	OSD(PA&E)
Gary Tullis	Air Force SAF/AQF
Bob Walker	Air Force SAF/AQX
John Walsh, Lieutenant Colonel	OASD/RA
Chip Woody	Contractor (SAIC) to SARD-RP

## Appendix D

### Section 816(a) Report

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This appendix is the Section 816(a) Report.



ACQUISITION AND  
TECHNOLOGY

THE UNDER SECRETARY OF DEFENSE

3010 DEFENSE PENTAGON  
WASHINGTON, DC 20301-3010

05 FEB 1999

Honorable Albert Gore, Jr.  
President of the Senate  
Washington, DC 20510

Dear Mr. President:

This report responds to Section 816 of the National Defense Authorization Act for Fiscal Year 1999 that directed the Secretary of Defense to designate ten "Pilot Programs for Testing Program Manager Performance of Product Support Oversight Responsibilities for Life Cycle of Acquisition Programs." The enclosed report provides program descriptions for the ten pilots, and identifies specific management actions we intend to take to improve Program Manager oversight and ensure that product support functions are properly carried out over the life of the program.

In general, the changes undertaken with these pilots recognize that with responsibility goes the authority to carry out properly support functions. The changes will require some shift in funding control from a functional to a weapons systems alignment. The details of these authority changes will differ depending on the pilot and the Service, and they are the subject of further definition by the Department.

The thrust of the management actions for the Pilot Programs is fourfold:

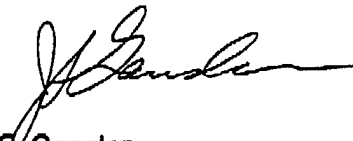
- First, we intend to increase the Department's visibility into product support costs, and the Program Manager's visibility and appropriate control of product support functions and funding over the life of the system. Management changes are designed to ensure that war-fighting capabilities can be delivered and sustained at a cost we can afford.
- Second, we are moving towards implementing formal commitments for product support through agreements among the warfighters, Program Managers, and government support activities or through competitive awards with the private sector.
- Third, we are examining ways to improve program-funding stability to realize the benefits of public and private long-term capital investments, which should result in reduced product support costs.
- Finally, we are working to manage effectively the cultural change in the public and private sectors that will be needed as we improve the product management of life-cycle support for our weapon systems.



I have not included a request for enactment of any change to law, policy, regulation, or organization as part of my report. However, the outcome of the studies that are currently underway may lead to such recommendations in the future. I ask you to join with the Department in creating an effective product support environment. As with any evaluation of pilot activity, the validity of the outcome is critically dependent upon program stability, including funding stability during the pilot period. In that regard, I ask you further to join with me to maintain a stable program posture while we are learning from these pilots.

A copy of this report has been sent to the Speaker of the House of Representatives, Chairman of the Senate Armed Services Committee, Chairman of the House Armed Services Committee, Chairman of the Senate Appropriations Committee, Chairman of the House Appropriations Committee, Chairman of the Senate Appropriations Committee Subcommittee on Defense, and Chairman of the House Appropriations Committee Subcommittee on Defense.

Sincerely,

A handwritten signature in dark ink, appearing to read "J. S. Gansler", with a long horizontal flourish extending to the right.

J. S. Gansler

Enclosure:  
As Stated

**Report  
in Response to  
Section 816  
of the  
Strom Thurmond  
National Defense Authorization Act  
for Fiscal Year 1999**

*Pilot Programs for Testing Program Manager Performance of  
Product Support Oversight Responsibilities for Life Cycle of  
Acquisition Programs*

## **F-16 Fighting Falcon**

### **Program Description**

The F-16 Multimission Fighter is a single engine, lightweight, high performance aircraft with the newest block of aircraft powered by a 29,000 pound thrust class augmented turbofan Increased Performance Engine (IPE). It is a tactical fighter aircraft with an air-to-air and air-to-surface, multi-role capability that can be deployed from the continental US to any possible trouble area of the world with minimum en route support and with high reliability and simplified maintenance procedures to assure successful operation under austere conditions. The F-16 Program is part of the continuing mobilization of US tactical fighters to reverse the upward trend in higher total investment and operating and support costs. The F-16 provides a modern, low cost addition to both active and reserve tactical fighter forces. The F-16 is employed in a complementary role to the F-15 in counter air missions, and to supplement the surface attack capabilities of the F-15E, F-117, and A-10.

### **Specific Management Actions (Not In Priority Order) To Ensure Program Manager (PM) Has Oversight Responsibility**

- Improve program funding stability.
- Improve and automate cost reporting systems to provide more detailed and increased funding visibility.
- Improve cooperative decision making between operational, sustainment, and PM community on efficient and effective resource application.
- Increase PM involvement in modification planning and prioritization.
- Allow PM to optimize program funding by matching to execution schedules.
- Provide PM with greater influence over the Source of Repair Assignment Process.
- Empower the PM to enter into total system performance agreements with the warfighter for his weapon system.
- Establish policy and procedures to allow re-investment of savings.

## **Aviation Support Equipment (ASE)**

### **Program Description**

The Aviation Support Equipment Program Office, PMA-260, is responsible for providing common, affordable, cost effective aviation support equipment for Naval Aviation Organizational (O-level) and Intermediate (I-level) maintenance activities. PMA-260 is responsible for 1,064 different types of equipment, comprising an active inventory in excess of 100,000 total different line items valued at \$10B. Currently, PMA-260 has 215 active programs (programs receiving some level of R&D, Procurement, or O&M,N funding). Because of the far-reaching nature of PMA-260's responsibilities, this program office has the ability to dramatically affect the Operations and Support costs of every aircraft in Naval Aviation's inventory. While all of Aviation Support Equipment will be covered under PMA-260's Total Ownership Cost (TOC) plan, the largest single contributor to reducing Support Equipment ownership costs is the Consolidated Automated Support System (CASS).

The CASS program is chartered to replace the Navy's inventory of 24 different types of computer based Automatic Test Equipment (ATE) with one modern, cost effective family of testers. The complete fielding of CASS leading to the reduction of legacy testers in the fleet (and the associated costs of legacy tester training, spares, maintenance publications, manpower, and field support) will provide Naval Aviation with cost avoidance/savings in excess of \$1B. CASS composed of primarily commercial off-the-shelf (COTS) and non-developmental items (NDI) hardware, supports I-level and depot level repair of aircraft, surface, and other weapons systems electronics. The system repairs over 600 different assets and after the complete offload of legacy test benches from carriers and shore-based I-levels, will support a workload in excess of 2,300 different black boxes and circuit cards.

This state of the art tester supports assets from the current and planned Naval Aviation inventory of aircraft, as follows: F/A-18 (all variants), EA-6B, S-3, F-14 (all variants), H-60, H-3, C-2, E2-C, and V-22. Because of its versatility, the National Oceanographic and Atmospheric Administration (NOAA) for testing the NEXRAD radar system employ CASS. The Navy's Regional Maintenance Board is considering additional opportunities for CASS across other (surface) systems.

### **Specific Management Actions (Not In Priority Order) To Ensure Program Manager (PM) Has Oversight Responsibility**

- Provide PM more detailed and increased visibility of overall Operations and Support (O&S) funding.
- Require PM to develop O&S baseline and objectives and monitor progress.
- Prioritize Operations & Maintenance funds by weapon system.
- Transfer control of appropriate O&S funding to the PM.
- Provide investment funds to the PM to reduce life cycle costs consistent with Service priorities.

[https://doi.org/10.1089/jam.2017.0060](#)

- 2



## **B-1B Lancer**

### **Program Description**

In the January 1992 publication of The Bomber Roadmap, the Secretary of the Air Force designated the B-1B as the backbone of the bomber force. In the August 1992 Mission Need Statement and the April 1993 Operational Requirements Document, HQ ACC specified the need for an improved conventional mission capability on the B-1B. This will primarily be accomplished via the Conventional Mission Upgrade Program (CMUP).

The upgrade will enhance the capability of the B-1B to perform near precision attacks against all but heavily defended targets deep in enemy airspace during conventional operations. The requirement is satisfied with a material solution to provide the B-1B with improved lethality through the integration of near precision conventional weapons such as the Joint Direct Attack Munition (JDAM). As part of the advanced munitions integration, implementation of MIL-STD-1760 electrical interconnect system, communication upgrades and the Global Positioning System (GPS) is included. The upgrade is a modification program integrating predominantly non-developmental items to enhance aircraft conventional mission capabilities.

### **Specific Management Actions (Not In Priority Order) To Ensure Program Manager (PM) Has Oversight Responsibility**

- Improve program funding stability.
- Improve and automate cost reporting systems to provide more detailed and increased funding visibility.
- Improve cooperative decision making between operational, sustainment, and PM community on efficient and effective resource application.
- Increase PM involvement in modification planning and prioritization.
- Allow PM to optimize program funding by matching to execution schedules.
- Provide PM with greater influence over the Source of Repair Assignment Process.
- Empower the PM to enter into total system performance agreements with the warfighter for his weapon system.
- Establish policy and procedures to allow re-investment of savings.

## **M-1 Abrams**

### **Program Description**

The Abrams tank provides heavy armor superiority on the battlefield. The Abrams program is unique in that it has products throughout its life cycle: M1A2 SEP in R&D; M1A2 in production, M1A1 in sustainment; and M1 in upgrade/disposal. The Abrams AGT 1500 Engine and its Mean Time Between Failure (MTBF), is an operational concern and a major Operations and Support (O&S) cost driver for the Army.

### **Specific Management Actions (Not In Priority Order) To Ensure Program Manager (PM) Has Oversight Responsibility**

- Provide PM more detailed and increased visibility of overall O&S funding.
- Transfer control of appropriate O&S funding to the PM.
- Improve program funding stability.
- Integrate new product support processes with customer/ warfighter requirements.
- Reengineer Working Capital Fund (WCF) to support a product management focus.
- Place PM Abrams in charge of the Abrams Integrated Management (AIM) XXI program. Transfer Army WCF for Abrams turbine engine reparables to the PM.
- Consolidate other customer resources under the PM.
- Augment contractor logistics support with traditional logistics support.

## **Advanced Field Artillery Tactical Data System (AFATDS)**

### **Program Description**

AFATDS is a heavily software oriented, multi-service, weapon system that serves as the digitized Force XXI baseline Fire Support (FS) Command and Control (C2) System for the Army and USMC from Firing Platoons through Echelons Above Corps (EAC). It automates, coordinates, and integrates Air, Land, and Sea-based fires optimizing FS solutions based on Commander's guidance and all available FS assets. As the essential fire support C2 node, AFATDS will provide full Army Battle Command System (ABCS) horizontal First Digitized Division (FDD) capabilities with enhanced survivability and Continuity of Operations (CONOPS) for the Joint Force Commander.

### **Specific Management Actions (Not In Priority Order) To Ensure Program Manager (PM) Has Oversight Responsibility**

- Place control of Army Legacy FS C2 Systems and related assets under PM.
- Place oversight of Army Tech Base FS C2 Initiatives under PM.
- Transfer control of appropriate FS C2 Operations and Support (O&S) funding to the PM:
- Reengineer Working Capital Fund (WCF) to support a product management focus.
- Provide PM more detailed and increased visibility of overall FS C2 O&S funding.
- Improve program funding stability.
- Place responsibility for Army FS C2 Operational Requirements under one User Entity in the Training and Doctrine Command (TRADOC).
- Provide PM more detailed and increased visibility into customer/warfighter FS-related initiatives.
- Allow PM to retain a portion of savings for re-investment in other savings programs.

## **C/KC-135 Stratolifter/Stratotanker**

### **Program Description**

The C/KC-135 fleet is comprised of approximately 590 aircraft operated by 8 MAJCOMs and NASA at 38 different locations around the world. Aerial refueling aircraft comprise the majority of the fleet, however, there are more than 20 unique series of -135 aircraft, including reconnaissance, VIP transport, and observation platforms. All active duty tanker units, as well as many Air National Guard (ANG) and Air Force Reserve Command (AFRC) units, operate the KC-135R version. The KC-135R is characterized by increased fuel off-load capability, improved fuel efficiency, enhanced takeoff performance, and reduced environmental impact compared to the KC-135A and KC-135E aircraft from which they were modified. In recent years, the KC-135 fleet has picked up an ever-increasing role transporting cargo, in addition to its air refueling duties.

### **Specific Management Actions (Not In Priority Order) To Ensure Program Manager (PM) Has Oversight Responsibility**

- Improve program funding stability.
- Improve and automate cost reporting systems to provide more detailed and increased funding visibility.
- Improve cooperative decision making between operational, sustainment, and PM community on efficient and effective resource application.
- Increase PM involvement in modification planning and prioritization.
- Allow PM to optimize program funding by matching to execution schedules.
- Provide PM with greater influence over the Source of Repair Assignment Process.
- Empower the PM to enter into total system performance agreements with the warfighter for his weapon system.
- Establish policy and procedures to allow re-investment of savings.

## **C-5 Galaxy**

### **Program Description**

The C-5 aircraft is a multi-engine turbofan aircraft designed to airlift substantial payloads, including outsize combat equipment, over intercontinental ranges with or without refueling, thereby providing rapid inter-theater deployment of combat forces. The C-5A, B, and C aircraft are operated by four major commands: Air Mobility Command (AMC); Air Force Reserve Command (AFRC); Air National Guard (ANG); and Air Education and Training Command (AETC). AMC is the lead command for the C-5. Several airlift requirements studies have indicated that additional airlift is needed for rapid inter-theater deployment of combat forces and equipment to support national strategy goals and to meet the flexible and demanding mobility requirements of today's modern armed forces.

### **Specific Management Actions (Not In Priority Order) To Ensure Program Manager (PM) Has Oversight Responsibility**

- Improve program funding stability.
- Improve and automate cost reporting systems to provide more detailed and increased funding visibility.
- Improve cooperative decision making between operational, sustainment, and PM community on efficient and effective resource application.
- Increase PM involvement in modification planning and prioritization.
- Allow PM to optimize program funding by matching to execution schedules.
- Provide PM with greater influence over the Source of Repair Assignment Process.
- Empower the PM to enter into total system performance agreements with the warfighter for his weapon system.
- Establish policy and procedures to allow re-investment of savings.

## Navy H-60 Series

### Program Description

SH-60B - The Light Airborne Multi-Purpose System's (LAMPS MK III) primary mission is Anti-Submarine Warfare (ASW) and Anti-Surface Warfare (ASUW) with the secondary mission of the aircraft including: Search & Rescue (SAR); Medical Evacuation (MEDEVAC); Vertical Replenishment (VERTREP), and Communication Relays (COMREL). The aircraft provides a remote platform for deployment of sonobuoys and torpedoes, processes acoustic and Magnetic Anomaly Detection (MAD) sensor information and Electronic Warfare Support Measures.

SH-60F - The CV Inner Zone Anti-Submarine Warfare (ASW) Helicopter provides CVBG with quick reaction Inner Zone ASW protection. The SH-60F is equipped with the AQS-13F dipping sonar to assist in the primary mission of ASW. Other missions for the SH-60F include Anti-Surface Warfare; Command, Control and Communications; Fleet Support Operations such as plane guard, MEDEVAC, and SAR; logistics support and surveillance.

HH-60H - The HH-60H provides the CVBG with organic Combat Search and Rescue (CSAR) and Special Warfare Support capabilities. Other mission requirements for the aircraft include SAR and VERTREP of material and personnel transfers within the battlegroup.

SH-60R - The SH-60R provides a significant enhancement to the SH-60B/F primary mission areas of Under Sea Warfare (USW), Anti-Surface Warfare (ASUW), and Area Surveillance/Combat ID. The aircraft incorporates Airborne Low Frequency Sonar (ALFS), increases sonobuoy processing, and acoustic signal post-processing capabilities. This upgrade brings advances in active sonars and acoustic processing; improved radar detection and imaging; expanded surveillance capability, weapons flexibility and command and control capabilities to the organic battlegroup.

CH-60S - The Helicopter Combat Support (HC) mission is to maintain the forward deployed fleet sustainability through rapid airborne delivery of materials and personnel and to support amphibious operations through search and rescue coverage. The primary roles of the aircraft are to conduct VERTREP; internal transport of passengers and cargo, vertical on board delivery (VOD); airhead operations, and day/night SAR and CSAR. The aircraft's secondary roles include torpedo and drone recovery, noncombatant evacuation operations (NEO), SEAL and Underwater Demolition Team (UDT) support. In addition, there is currently an on-going effort to determine the feasibility of performing Airborne Mine Counter Measures using the CH-60S. A proof of concept tow test will take place in the fourth quarter of FY99.

Specific Management Actions (Not In Priority Order) To Ensure Program Manager (PM) Has Oversight Responsibility

- Provide PM more detailed and increased visibility of overall Operations and Support (O&S) funding.

- Require PM to develop O&S baseline and objectives and monitor progress.
- Prioritize Operations & Maintenance funds by weapon system.
- Transfer control of appropriate O&S funding to the PM.
- Provide investment funds to the PM to reduce life cycle costs consistent with Service priorities.
- Improve program funding stability consistent with Service priorities.
- Require PM to enter into agreement with warfighter.
- Consider PM retention of a portion of savings along with other incentive mechanisms for re-investment consistent with Service priorities.

## **Standoff Land Attack Missile - Expanded Response (SLAM-ER)**

### **Program Description**

Standoff Land Attack Missile - Expanded Response (SLAM-ER) is an upgrade to the SLAM missile. SLAM, the Navy's first Global Positioning System (GPS) guided weapon, was first used in 1991 during Operation Desert Storm. The SLAM-ER addresses the Navy's requirements for a precision-guided Standoff Outside of Area Defense weapon. Utilizing video imagery from the seeker that is passed to the pilot via the AN/AWW-13 data link pod, SLAM-ER's Man-in-the-Loop (MITL) control allows precision strike of fixed land targets from ranges in excess of 150 NM. SLAM-ER, in combination with the F/A-18 and AWW-13, brings the capability to attack ships underway in congested waters and relocated mobile land targets.

The SLAM-ER program has just completed a highly successful Development Test and combined Development Test/Operational Test program in which eight-of-eight missiles properly flew and hit their targets. Operational Evaluation (OPEVAL) is ongoing and is expected to be completed in early 1999. SLAM-ER started low rate initial production in December 1996. A Milestone III decision is expected in mid-FY99 with fleet initial operational capability (IOC) following shortly thereafter.

The upgrade to the SLAM-ER combines the proven abilities of a MITL system with the promising capabilities of Automatic Target Acquisition (ATA). ATA capability will automate and improve target acquisition in cluttered scenes; overcome most counter measures and environmentally degraded conditions. The upgrade to SLAM-ER started low rate initial production in July 1998 and is schedule for fleet IOC in 2000.

### **Specific Management Actions (Not In Priority Order) To Ensure Program Manager (PM) Has Oversight Responsibility**

- Provide PM more detailed and increased visibility of overall Operations and Support (O&S) funding.
- Require PM to develop O&S baseline and objectives and monitor progress.
- Transfer control of appropriate O&S funding to the PM.
- Provide investment funds to the PM to reduce life cycle costs consistent with Service priorities.
- Allow PM to use broad contracting guidelines.
- Improve program funding stability consistent with Service priorities.
- Require PM to enter into agreement with warfighter.
- Consider PM retention of a portion of savings along with other incentive mechanisms for re-investment consistent with Service priorities.



## **AH-64 Apache**

### **Program Description**

The AH-64 Apache attack helicopter's mission is to conduct rear, close, and deep operations; deep precision strike; and provide armed reconnaissance and security when required in day, night, and adverse weather conditions. Apache Prime Vendor Support (PVS) is a comprehensive approach to provide wholesale logistics support, which includes depot maintenance as well as supply support, for the entire Apache weapon system. The objective is to reduce the overall Army support cost, improve parts availability, maintain aircraft readiness, and provide funds for modernization.

### **Specific Management Actions (Not In Priority Order) To Ensure Program Manager (PM) Has Oversight Responsibility**

- Provide PM more detailed and increased visibility of overall Operations and Support (O&S) funding.
- Transfer control of appropriate O&S funding to the PM.
- Provide investment funds to the PM to reduce life-cycle costs.
- Improve program funding stability.
- Integrate new product support processes with customer/ warfighter requirements.
- Reengineer Working Capital Fund (WCF) to support a product management focus.
- Implement the Apache PVS program.
- Include Corpus Christi Army Depot (CCAD) as a Government Furnished Service.
- Allow the PM to retain a portion of savings for re-investment in other savings programs.

## Appendix E

# Memorandum for Service Acquisition Executives

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This appendix is the memorandum for Service Acquisition Executives that requested pilot program implementation plans for PMOLCS.

*Memorandum for Service Acquisition Executives*



ACQUISITION AND  
TECHNOLOGY

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON  
WASHINGTON, DC 20301-3000

12 FEB 1999

MEMORANDUM FOR SERVICE ACQUISITION EXECUTIVES

SUBJECT: Request for Pilot Program Implementation Plans for Program Manager Oversight of Life-Cycle Support (Section 912(c))

You are requested to provide implementation plans for management actions for the 10 pilot programs designated in response to Section 912(c) of the National Defense Authorization Act for Fiscal Year 1998. The intent of these pilots is to test increased program manager oversight of appropriate product support functions. The format for reporting on each program is shown at Attachment 1.

BACKGROUND

Section 912(c) of the National Defense Authorization Act for Fiscal Year 1998 directed the Secretary of Defense (SECDEF) to submit to Congress an implementation plan to streamline DoD's acquisition organization, workforce and infrastructure. SECDEF responded on April 1, 1998 with a report, Actions to Accelerate the Movement to the New Workforce Vision. That report addresses several topics. One topic is "Section 2, Restructure Sustainment, Subsection 2.4, Establish Program Manager Oversight of Life-Cycle Support." On August 28, 1998, the Under Secretary of Defense (Acquisition & Technology) (USD(A&T)) established a study group to determine what policy changes, if any, are needed to implement the Secretary's initiative.

In a separate, related matter, Section 816(a) of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 states "The Secretary of Defense, acting through the Secretaries of the military departments, shall designate 10 acquisition programs of the military departments as pilot programs on program manager responsibility for product support."

In response to the Section 912(c) requirement, each Military Department provided a list of 10 pilot programs and an outline of the management actions necessary for each program manager (PM) to achieve oversight. In response to Section 816, USD(A&T) selected 10 programs to be reported to the Congress from 30 Section 912(c) programs designated by the Services. Please note that while the Section 816(c) report covers 10 designated pilot programs for reporting to Congress, all 30 programs will be Section 912(c) pilots for testing and monitoring PM oversight of lifecycle support within the Department.

In order to prepare its Section 912(c) final report, the study group, known as the Program Manager Oversight of Life-Cycle Support (PMOLCS) Study Group, needs certain detailed information from the Military Departments about each of the 30 pilot programs, including plans to implement the management actions associated with those programs. The study group also needs to be able to relate each implementation plan to various aspects of product support.



## REQUESTED INFORMATION

For each of your Service's 10 pilot programs, request you provide an implementation plan to the PMOLCS Study Group not later than March 12, 1999. A chart for each Military Department that shows their pilot programs and associated management actions is provided as Attachment 2.

Those plans should describe each management action in detail and include a Plan of Action and Milestones (POA&M). The POA&Ms should reflect specific tasks, responsibility assignments and completion dates as outlined in Attachment 1. Plans should also cite specific local, Service-wide and DoD-wide policies, regulations and organizations that must be changed or waived or specific Federal statutes that must be changed or waived to carry out each management action.

Any cost baselines developed in conjunction with management actions for pilot programs must be consistent with the cost baselines that have been requested by the Defense Systems Affordability Council (DSAC). In its December 11, 1998 memorandum, "Decision Memorandum and Meeting Summary - DSAC Executive Committee Meeting of December 2, 1998," the DSAC requested that each Service "identify cost baselines, time-phased goals and metrics" for the pilot programs.

At the DSAC meeting of December 2, 1998, it was also decided that the 10 DoD pilots would be the primary test beds for pilot activities generated by the Section 912(c) Product Support study. That study is ongoing. Attachment 3 is a list of tools for reengineering product support, which has been developed by the Product Support Reengineering study team. This list is provided for reference. Where appropriate, describe how these tools would be used in conjunction with specific management actions.

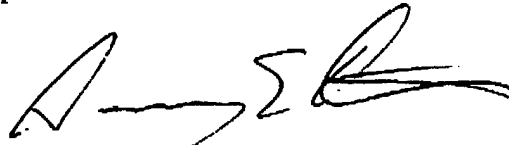
For each pilot program, you are requested to provide a summary of how funding control associated with product support functions should change. Please use the format in Attachment 4 to show, by program, how funding control should change in each category represented by the Cost Analysis Improvement Group (CAIG) Operations and Support (O&S) cost elements. Attachment 5 shows the overall schedule for completing the study group's final report.

Your response should represent a coordinated Military Department position on implementing each management action. Further, your response should show how each of the 30 pilot programs would test options for increasing PM oversight and control of specific support functions on a program by program basis. Defining specific management actions for the pilot programs does not necessarily imply future global application across the Department or for any Service.

Finally, as appropriate, the PMOLCS Study Group will need to conduct interviews with selected pilot program managers and their parent program executive offices. You are requested to facilitate such interviews when requested by the study group.

*Memorandum for Service Acquisition Executives*

My point of contact for this action is Bob Leach, the PMOLCS Study Group leader, located in the Pentagon, room 3D161. He may be contacted by e-mail at leachbj@acq.osd.mil or by telephone at 703-695-5166.



Gary E. Christle  
Acting Director, Acquisition  
Program Integration

Attachments (Attachments 2 through 5 removed)

Distribution:  
Under Secretaries of Defense  
Assistant Secretaries of Defense  
Chairman, JCS  
General Counsel of DoD  
Inspector General of the DoD  
Principal Deputy USD (A&T)  
Directors of the Defense Agencies  
CINC, USSOCOM  
OIPT Leaders  
Director, DP  
Director, PA&E  
Director, TSE&E  
Chairman, CAIG

**Format for DoD Pilot Program  
Management Action  
Implementation Plans**

Service:

Program Name:

- Management Action #1:
  - Detailed description of management action, including rationale for change.  
Highlight CAIG cost elements affected by this management action:
  - POA&M, including steps to change/waive relevant policies, regulations, organizations, and statutes:

<u>Task</u>	<u>Responsibility</u>	<u>Completion Date</u>
-------------	-----------------------	------------------------

- Management Action #2:
  - Detailed description of management action, including rationale for change.  
Highlight CAIG cost elements affected by this management action:
  - POA&M, including steps to change/waive relevant policies, regulations, organizations, and statutes:

<u>Task</u>	<u>Responsibility</u>	<u>Completion Date</u>
-------------	-----------------------	------------------------

- Management Action #3:
  - Detailed description of management action, including rationale for change.  
Highlight CAIG cost elements affected by this management action:
  - POA&M, including steps to change/waive relevant policies, regulations, organizations, and statutes:

<u>Task</u>	<u>Responsibility</u>	<u>Completion Date</u>
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- Management Action #n...

Attachment 1

## Appendix F

# Program Executive Officer and Systems Command Survey

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### BACKGROUND

The PMOLCS team determined that a survey of PEO and PM views on product support would be beneficial. The primary intent of the survey was to obtain the opinions and recommendations from current PEOs and PMs on the oversight of O&S costs. PMs are the best source to provide recommendations because they have the task of executing complex programs while constantly seeking to minimize the current and future operating costs of weapon systems. Additionally, they are managing programs and dealing with constant pressure of finding new and innovative ways to reduce acquisition costs as well as program life-cycle cost. Although PMs are asked to reduce operational costs, they do not now have the insight or oversight of these areas. The survey can be used for determining if the efforts for reducing the O&S cost of legacy systems can provide an adequate return on investment.

The survey was drafted by the core group and presented to the PMOLCS team for comments and recommendations. The comments provided by the PMOLCS team were incorporated into the survey. At the PEO/SYSCOM Conference held on 15 October 1998 at Ft. Belvoir, VA, the conferees were requested to complete the survey to assist the PMOLCS effort; 81 conferees answered the survey.

### PMOLCS SURVEY

The survey's results indicate that PEOs and PMs believe significant cost reductions (worthy of investment) in the life-cycle cost of weapon systems can be achieved. The survey examined the phases of an acquisition program to determine where PMs believe they can make the largest impact to reduce costs as well impediments that prevent the PMs from achieving the objective of reducing life-cycle support.

The survey also sought to identify whom—the PMs or field commands—the PMs thought could more effectively manage cost element areas identified in the CAIG cost model. The PMs were asked to identify O&S cost elements they can reduce if given the oversight and authority (i.e., control of the funds).

An added group of questions deals with the concept of a key performance parameter (KPP) or goals to be identified in the ORD by the users. The KPP would

be measurable, and the users would report progress in achieving this objective as PMs provide progress reports during the development of a new or modified weapon system. The performance parameter provides the opportunity and forum to address O&S costs with the users as well as the employment of these systems.

## SURVEY CONSTRUCTION

The survey was divided into the following four sections:

- ◆ The first section requests general information about the respondent's demographics—position, experience, and program size (Acquisition Category [ACAT] I, II, or III) that the respondent represents.
- ◆ The second section requests the opinions of PEOs and PMs on savings obtainable in the life cycle of a program, both before and after fielding. The survey also explores the system acquisition aspects to include identifying impediments to the acquisition process.
- ◆ The third section addresses the weapon system in the post-fielding phase. In this section questions address whom (PEO, PM, or command) can manage the cost elements more effectively to reduce life-cycle costs if given the oversight and authority.
- ◆ The final section addresses the issue if PEOs and PMs believe that measurable goals should be addressed in the ORD and that users establish a baseline at Milestone III to measure O&S cost savings and provide results to the appropriate authority.

The survey questions requested a value response from 1 to 5; 1 is yes or high in value or opinion; 3 is neutral, no opinion, or medium; and 5 is no or low in value or opinion. This scoring allowed PMs who had no opinion or experience in an area to choose a value of 3. Therefore, a value of 1 or 2 is positive, and a value of 4 or 5 is a negative response with values of 1 and 5 being the limits.

## SURVEY RESULTS AND FINDINGS

### Demographics

The positions of the 81 survey participants are as follows:

Number	Position
16	PEO
42	PM
23	Other career fields



### *Program Executive Officer and Systems Command Survey*

The acquisition experience of the responders is as follows:

Percent	Experience
30	More than 20 years
20	16 to 20 years
21	11 to 15 years
17	6 to 10 years

From this information, 51 percent of the respondents have at least 16 years of experience and represent all sizes of DoD acquisition programs from ACAT 1D to III and small program offices.

### Survey Questions and Results

*Do you as a PM believe you can significantly (more than 15 percent) reduce the life-cycle cost of weapon systems?*

Number	Percent	Response
49	59	Positively
20	25	Neutrally
12	16	Negatively

*Can you, the PM, significantly (more than 15 percent) reduce the life-cycle cost of fielded weapon systems?*

Number	Percent	Response
44	54	Positively
24	30	Neutrally
13	16	Negatively

The scores show a slight change to being less optimistic for reducing the life-cycle cost after a system is fielded. The greatest opportunity to achieve the capability to reduce O&S cost significantly is early in the design phase. Another acquisition method that reduces cost is the use of private contracting activities.

*To what degree do you believe the PEOs and PMs can reduce support by outsourcing or privatization?*

Percent	Response
<b>Outsourcing</b>	
55	Positively
45	Neutrally and negatively
<b>Privatization</b>	
44	Positively
56	Neutrally and negatively

The respondents do not overwhelmingly agree that outsourcing and privatization can reduce support costs.

*What are the greatest impediments preventing the ability to reduce life-cycle costs?*

Number	Percent	Response
66	81	Lack of stability of funding
65	80	PM's lack of funding
37	46	Law
37	46	Non-value added tasks
32	39	Current accounting systems
25	31	Major command policy
23	28	Regulations

*Program Executive Officer and Systems Command Survey*

*Which cost element do you as the PEO or PM believe you could reduce if you were given the control and authority?*

Number	Percent	Response
<b>Organic depot maintenance</b>		
55	68	Positive
18	22	Neutral
8	10	Negative
<b>Organic intermediate maintenance</b>		
44	54	Positive
23	28	Neutral
14	18	Negative
<b>Sustaining support</b>		
58	72	Positive
15	18	Neutral
8	10	Negative
<b>Miscellaneous contract support</b>		
49	60	Positive
19	23	Neutral
13	17	Negative
<b>Consumables</b>		
39	48	Positive
23	28	Neutral
28	24	Negative
<b>Organic training</b>		
24	30	Positive
27	33	Neutral
30	37	Negative
<b>Mission personnel costs</b>		
19	23	Positive
20	25	Neutral
42	52	Negative

*Do you believe that goals and constraints for support can be established by the user in the ORD?*

Number	Percent	Response
70	85	Yes
11	14	No

*Do you believe the user should establish a baseline at Milestone III to measure O&S cost savings?*

Number	Percent	Response
68	83	Yes
13	17	No

*Do you believe that a post-fielding verification should be conducted to determine if increases in ownership costs occurred over the costs approved at Milestone III?*

Number	Percent	Response
65	80	Yes
16	20	No

## CONCLUSIONS

The PEOs and PMs believe they can further reduce life-cycle cost if given the oversight with control and authority over the O&S costs for weapon systems. In addition, user metrics should be documented in the ORD to measure O&S costs in relation to the design factors.

## Appendix G

### Abbreviations

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The following list defines the acronyms used in this report.

AAAV	Advanced Amphibious Assault Vehicle
ABCS	Army Battle Command System
ACAT	Acquisition Category
AE	Acquisition Executive
AETC	Air Education and Training Command
AFATDS	Advanced Field Artillery Tactical Data System
AFRC	Air Force Reserve Command
ALFS	Airborne Low Frequency Sonar
AMC	Air Mobility Command
AMCM	Advanced Airborne Mine Countermeasures Equipment
ANG	Air National Guard
APM	Assistant Program Manager
ASA	Assistant Secretary of the Army
ASUW	antisurface warfare
ASW	antisubmarine warfare
ATA	automatic target acquisition
ATE	automatic test equipment
AWACS	Airborne Warning and Control System
C <sup>2</sup>	command and control
C4I	command, control, communications, computers, and intelligence

CAIG	Cost Analysis Improvement Group
CAIV	Cost as an Independent Variable
CINC	Commander in Chief
CMC	Cheyenne Mountain Complex
CMUP	Conventional Mission Upgrade Program
COMREL	communication relays
CONOPS	continuity of operations
CSAR	combat search and rescue
D, API	Director, Acquisition Program Integration
DCAA	Defense Contract Audit Agency
DCMC	Defense Contract Management Command
DLA	Defense Logistics Agency
DoD	Department of Defense
DSAC	Defense Systems Affordability Council
DUSD(A&T) API/PM	Deputy Under Secretary of Defense (Acquisition and Technology) Acquisition Program Integration/Performance Management
EAC	echelons above corps
FDD	first digitized division
FMS	foreign military sales
FOV	Family of Vehicles
FS	fire support
FY	fiscal year
GPS	Global Positioning System
HEMTT	Heavy Expanded Mobility Tactical Truck
HIMARS	High Mobility Artillery Rocket System

## *Abbreviations*

IIS	helicopter support
IOC	initial operational capability
IPE	increased performance engine
IPT	integrated product team
ITAS	Improved Target Acquisition System
JDAM	Joint Direct Attack Munitions
JSTARS	Joint Surveillance and Target Attack Radar System
KPP	key performance parameter
LAMPS	Light Airborne Multi-Purpose System
LOA	letter of agreement
LRU	line replaceable unit
MAD	Magnetic Anomaly Detection
MAIS	Major Automated Information System
MDAP	Major Defense Acquisition Program
MEDEVAC	medical evaluation
METOC	Metcorology and Oceanography
MITL	man-in-the-loop
MLRS	Multiple Launch Rocket System
MTBF	mean time between failure
NDI	non-developmental item
NEO	noncombatant evacuation operations
NOAA	National Oceanographic and Atmospheric Administration
NSA	National Security Agency
O&M	operations and maintenance
O&S	operations and support

OPEVAL	operational evaluation
OPTEMPO	operational tempo
ORD	Operational Requirements Document
OSD	Office of the Secretary of Defense
OSD(C)	Office of the Secretary of Defense (Comptroller)
OSD(PA&E)	Office of the Secretary of Defense (Program Analysis and Evaluation)
PE	program element
PEO	Program Executive Officer
PM	Program Manager
PMOLCS	Program Manager Oversight of Life-Cycle Support
POA&M	plan of action and milestones
POM	Program Objective Memorandum
PSRIT	Product Support Reengineering Implementation Team
PTM	Product Type Manager
PVS	Prime Vendor Support
RDA	Research, Development, and Acquisition
RTOC	Reduction in Total Ownership Cost
SAE	Service Acquisition Executive
SA/PME	Senior Acquisition/Product Management Executive
SAR	search and rescue
SARDA	Secretary of the Army for Research, Development, and Acquisition
SBIRS	Space-Based Infrared System
SECDEF	Secretary of Defense
SLAM-ER	Standoff Land Attack Missile—Expanded Response



## *Abbreviations*

SSTS	Space Surveillance and Tracking System
SYSCOM	Systems Command
TOC	total ownership cost
TOW	Tube-Launched, Optically Tracked Wire-Guided Missile System
TRADOC	Training and Doctrine Command
UDT	underwater demolition team
USAF	U.S. Air Force
USD(A&T)	Under Secretary of Defense (Acquisition and Technology)
USW	under sea warfare
VAMOSC	Visibility and Management of Operating and Support Costs
VERTREP	vertical replenishment
VOD	vertical on-board delivery
WCF	working capital fund